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Original Articles.

OVARIAN HEMATOMAS OF ENDOMETRIAL TYPE (PERFORATING HEMORRHAGIC CYSTS OF THE OVARY) AND IMPLANTATION ADENOMAS OF ENDOMETRIAL TYPE.*

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LOCKYER,¹ in his work, "Fibroids and Allied Tumors," published in 1918, has presented an excellent review of the entire subject of uterine and extrauterine adenomyomas up to that year. Chiari, in 1887, described a nodular swelling of the Fallopian tubes to which he gave the name salpingitis esthonica nodosa (now generally known as adenomyoma of the tube). Chiari found that the lumen of the tube sent projections of its mucous membrane into the muscularis. The connection was cut off in some, but the cysts which had formed were regarded by him as mucosal in origin. In 1891, Baraban attributed a mucosal origin to a uterine growth which he reported, and considered that the associated muscular and connective tissue hypertrophy supported his findings. In 1894, Pilliet took the view that the cysts and glands of

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adenomyoma were of mucosal origin. In 1895, Cullen described his first case of adenomyoma, and through his writings on this subject, with their superb illustrations, he, more than any one else, has demonstrated that the generally recognized adenomyoma of the uterus arises from an invasion of the uterine mucosa into the wall of the uterus. The origin of certain forms of adenomyoma of the uterus and the tube by the invasion of the mucosa lining their cavities, is an established fact. What is the origin of extrauterine adenomyomas and also uterine adenomyomas which are not connected with the mucosa of the uterine cavity? The mucosa of the latter may have been originally continuous with that of the uterine cavity and this connection may have been cut off by uterine tissue growing between them, but others which superficially involve the surface of the uterus hardly admit of this conception. A review of the literature of extrauterine adenomyomas shows that they have been found involving nearly all of the structures in the pelvis, and even in the groin, umbilicus and anterior abdominal wall. The most interesting ones clinically are those invading the sigmoid, rectum and also those situated between the rectum and vagina; the latter are known as adenomyoma of the rectovaginal septum. These growths may clinically simulate carcinoma of the sigmoid and rectum. Lockyer in his work, previously referred to, gave an abstract of

forty-seven cases of adenomyoma situated in the rectogenital space which he had collected from the literature. The first case was reported by Pfaenstiel in 1897. The growth was situated in the deep tissue of the posterior vaginal fornix near the uterus, and Pfaenstiel regarded it as of Wolffian origin. Of the forty-seven cases only four were reported from this country and these by Cullen.² Many theories have been given by the various authors as to the origin of extrauterine adenomyomas. Some believed that they were of Wolffian origin, others that they were derived from remnants of the Müllerian ducts; and in instances where the growth was attached to the uterus, that it was originally continuous with the mucosa lining the uterine cavity but later had become separated from it. The most interesting theory of all is "The Serosal Theory of Iwanoff," which has had the support of many writers and is fully discussed by Lockyer. Lockyer, quoting from the supporters of the serosal theory, states that "heterotopy of serosal epithelium is the probable explanation of the epithelial spaces and cysts in most of the extrauterine swellings found between the rectum and the genital tract." And again he states "there is no doubt whatever about the possibility of the so-called 'endothelium' of the peritoneum being able, when excited by inflammation or under the influence of pregnancy (Alfieri), to alter the character of the flattened cells so that they become cylindrical and columnar" and that "it has been conclusively shown that the connective tissue which surrounds the 'endothelial' inclusions can be excited to hyperplasia which causes it to assume the characteristic histological features of the stroma of the uterine mucosa" (pages 295 and 296). Cullen,³ in discussing the origin of adenomyoma of the rectovaginal septum, states that "we know nothing as to the origin of these tumors, but it is certain that their glandular elements are identical with those of the mucosa of the body of the uterus." "A careful survey of the wealth of embryological material in Professor Mall's laboratory may give us some clue as to the starting point of these growths." In his later communications⁴ on the subject, published in 1919 and 1920, their origin is not considered.

Russell,⁵ in 1899, published the report of a case in which uterine mucosa was found in an ovary, the first case of its kind in the literature. Lockyer (page 328) pictures and describes a specimen of Semmelink and Joslin de Jong. The ovary was adherent to an "adenomyomatous" uterus. There was in the ovary a blood cyst lined in part by "adenomyomatous tissue" and with similar tissue in spaces in the periphery of the ovary. Casler,⁶ in 1919, reported an unusual case in which a patient menstruated through the vagina after a conservative hysterectomy in which one ovary was saved. At the second operation, four years later, the en-

larged ovary was removed and it was found to contain cavities lined by "normal uterine mucosa." Cullen,⁷ in 1920, described three specimens of ovaries containing uterine mucosa, one sent to him by Dr. C. C. Norris (since published by Norris⁸), another by Dr. Otto Schwarz, and the third of its own. In all of these specimens the histologic picture was similar to that of normal endometrium.

In 1921, under the title "Perforating Hemorrhagic (Chocolate) Cysts of the Ovary," I reported twenty-three cases of ovarian hematomas, all occurring in my own practice, and fourteen of them during the previous year. The hematomas described in this series varied in size from 1 to 9 cm. in diameter, most of them from 2 to 4 cm. They were bilateral in eight of the twenty-three cases. The perforation in all cases was found on the lateral or the free surface of the ovary and in all the specimens the tubes were apparently patent. At the operation the cyst or ovary was found to be adherent, and in freeing it the "chocolate" contents escaped because a previous perforation, which had been sealed by whatever structure the ovary had become adherent to, was reopened or the cyst was torn. Adhesions were present in all cases and they varied greatly in location and extent. They were found in the natural pockets and folds of the pelvis where material escaping from such a perforation would be apt to lodge, and especially in the cul-de-sac. When slight they simulated the adhesions resulting from a pelvic peritonitis of tubal origin; on the other hand the adhesions in the cul-de-sac were sometimes accompanied by such a marked reaction as to resemble malignancy.

The lining of the hematomas presented a varied histologic picture. Some were completely lined by epithelium, low to columnar, the cuboidal and columnar type prevailing and usually with evidence of hemorrhage, recent or old (the latter shown by the blood pigment), in the ovarian tissue beneath the overlying epithelial lining. Gland-like structures were occasionally found in this stroma resembling uterine glands. In other hematomas the epithelial lining was for the most part lacking and the hematoma was lined by a pigmented luteal-like layer of ovarian tissue—the pigment for the most part being in cells of the type of endothelial leucocytes. Some of these hematomas demonstrated what seemed to be a relining of the hematoma by epithelium apparently entering the hematoma at the site of the perforation, which I then interpreted as derived either from epithelium which had not been completely removed by the subepithelial hemorrhage rupturing into the hematoma or else from epithelium situated in the ovarian tissue at the site of the perforation. I now believe it was derived either from epithelium not completely removed, as in the regeneration of uterine epithelium after menstruation, or else from epithelium

which escaped from the perforation and grew back in again or reimplanted itself. Pockets were often found on the surface of the ovary about the perforations which were lined by tissue resembling typical endometrium more closely than that lining the hematomas. I now recognize that probably most of these arose from the implantation of epithelium escaping through the perforation of the ovarian hematoma.

I stated that I believed that the majority, and possibly all of the ovarian hematomas reported in this series, were of endometrial type. We had failed to recognize that these hematomas were lined by tissue of endometrial type because we have used as our standard of comparison normal endometrium which was situated in its natural "soil" with a free avenue for the escape of its menstrual blood. We have abundant opportunity to study the variations in the appearance of the uterine mucosa in the hemorrhagic cysts or cavities due to the retention of menstrual blood, often found in uterine adenomyomas. These should be our standards of comparison in the study of ovarian hematomas because the physical conditions are similar. The lining of the ovarian hematomas which I reported was similar to those of the uterine hematomas above mentioned.

A histologic study was made of tissue involved in the adhesions in fourteen of the twenty-three specimens, and adenoma of endometrial type was found in thirteen of these. I concluded that these ovarian hematomas were a source of many of the adenomas of endometrial type, so-called adenomyomas, found in the pelvis and not continuous with the mucosa of the uterine cavity. I added that "I cannot state that these ovarian hematomas of endometrial type are the only cause of ectopic pelvic adenomas." The conditions found in many of these specimens were compared with the implantations of ovarian papilloma or cancer on the peritoneal surface of the pelvis from the rupture of an ovarian tumor containing these growths. Sometime or, possibly, several times in the life of these hematomas material, including epithelium and blood (menstrual), may escape into the peritoneal cavity from the perforation of the hematoma and become lodged in the natural pockets and peritoneal folds of the pelvis or on the surface of any of the organs in the pelvis. Implantation adenoma may develop from the epithelium thus deposited. "These adenomas may be small and quiescent or may be invasive. If invasive they cause 'adenomyoma' of the uterus by invasion of the uterine wall from without or adenomyoma of the uterosacral ligament, round ligament, rectovaginal septum, rectum, sigmoid, etc., namely, whatever structure or organ is invaded by the adenoma arising from the infective contents of the cyst or ovary lodging on its surface."

Since publishing this paper I have had the opportunity to study more material and have been able to detect various stages in their development and retrogression which previously I had failed to recognize. Up to date (January 1, 1922), I have studied the tissue involved in the adhesions in the specimens removed from forty cases of ovarian hematomas of endometrial type and have found implantation adenoma of endometrial type in the pelvis, in situations where the material escaping from the perforation of the hematoma would be likely to lodge, in all but one specimen. On the other hand, in three cases of typical ovarian hematomas of endometrial type without any evidence of perforation, adhesions were not present in the pelvis and there was not any gross evidence of implantation adenoma; the pelvis was examined very carefully in each instance. Cilia may sometimes be found on the epithelium of the uterine mucosa, more often on that lining the Fallopian tubes. They may also be present on the epithelium of "adenomyoma" arising from the invasion of tubal and uterine mucosa. Cilia may sometimes be found on the epithelium lining the ovarian hematomas of endometrial type and likewise in the implantation adenomas. This latter fact weakens the serosal theory of the origin of ectopic adenomas of endometrial type and strengthens the implantation theory.

We would expect that the portions of the intestinal tract, normally found in the pelvis, would often be the seat of these implantations. I believe that implantations are often present in the rectum, sigmoid, small intestine and appendix. At a meeting of the Interurban Surgical Society held at Albany, New York, November 25, 1921, I presented the pathologic findings in twelve cases in which portions of the intestinal tract were involved by this type of growth. Ten of the twelve cases occurred in my own practice and eight of these ten cases were encountered during the previous six months. The report of this communication is soon to appear in the *Archives of Surgery*. In these twelve cases the rectum and the sigmoid, including the epiploic appendages and mesentery of the latter, were involved in eight, the appendix in four and the small intestine in two. It is interesting to note that in the eight instances of implantations in the sigmoid and rectum the ovarian hematoma was situated in the left ovary in six, while in the four instances of implantation in the appendix it was situated in the right ovary in four. This suggests that while the implantations from either ovary may be general in their pelvic distribution the portion of the intestine usually situated near that ovary is more apt to be involved. In all twelve cases the source of the implantations could have arisen from the perforation of an ovarian hematoma of endometrial type. An ovarian hematoma with evidence of a previous perforation was found and was examined microscop-

ically in ten of the cases. In one of the others a hemorrhagic cyst of the ovary had been removed four years before but had not been examined microscopically. In the other a portion of the sigmoid had been excised with the diagnosis of carcinoma and at the same time the left tube and ovary were removed, the latter being adherent and cystic. There was not any note made in the record of the case as to the exact condition of the ovary; the operation was done in the year 1899. I believe that an ovarian hematoma of endometrial type was probably present in both of these cases.

I consider an ovarian hematoma with perforation as a frequent source of implantation adenoma of endometrial type, but possibly not the only source—as will be discussed later.

Adenoma is sometimes found invading the lymph vessels from these implantations, and metastases may occur from this source and explain the origin of similar growths found in the groin. I have seen a similar invasion of a lymph vessel in a primary "adenomyoma" of the tube and believe that they also may occur in primary "adenomyoma" of the uterus.

THE CLINICAL FEATURES OF IMPLANTATION ADENOMA OF ENDOMETRIAL TYPE.

These vary with the pathologic condition present. The latter are often of only histologic interest and do not give rise to any symptoms. In some cases the hematoma in the ovary is the most evident condition present. In others the peritoneal implantations and the invasion of the underlying organ or tissue is of greater importance; and the lesion in the ovary may be small and insignificant or occasionally absent, at least not demonstrable. The implantations in many ways resemble the implantations of ovarian carcinoma. Fortunately they are not as invasive, they grow more slowly and their distribution is not as great. They differ from carcinoma in another interesting feature: they may combine function with that of invasion; they may take part in menstruation. The menstrual blood may escape into the peritoneal cavity not only from the hematoma of the ovary but also from implantations which may be on the surface of the other pelvic organs and structures, and these may be the source of more implantations and also cause pain during the menstrual period. Hematomas may occur and the distention of the hematomas, wherever situated, with menstrual blood may also cause pain at that time, and if they are situated in the walls of the intestine the impairment of the function of the intestine may be more evident during menstruation.

All pelvic adenomas of endometrial type have certain clinical features in common. They usually manifest themselves in women between thirty years of age and menopause. They occasionally occur in younger women, but I have

seen only one instance in a woman after the menopause; in this case the condition was apparently inactive. There is often a history of sterility in married women or of no pregnancies in several years. Painful menstruation of the acquired variety, or increasing in severity, is quite a common symptom. Pain may also arise from the adhesions, independent of menstruation. The symptoms for which the patient seeks relief may be due to some other pelvic condition and the adenomas may be an accidental finding. When the growth in any way encroaches upon the lumen of the intestine, then symptoms arising from this may occur and these may be more marked or present only during the menstrual period.

The physical signs vary greatly. The ovarian hematoma, if large, may be readily detected and the condition may simulate an adherent or malignant ovarian cyst. If smaller, it may resemble, on palpation, adherent ovaries associated with salpingitis. In other instances the ovarian hematoma may be so small that it cannot be detected prior to operation; it may also be easily overlooked during the operation and even in the routine examination of the ovaries in the pathological laboratory.

The palpatory findings in the cul-de-sac, when present, furnish the most characteristic physical signs. The uterus is often retroverted or retroflexed and adherent. Leiomyomas are frequently present. The implantations in the cul-de-sac may be slight or extensive, smooth or nodular, in the mid line or lateral, and often involving the uterosacral ligaments; and are frequently tender on palpation. The extensive cases may sometimes simulate implantation carcinoma in the cul-de-sac or at other times cancer of the rectum or sigmoid. The adenoma may extend down between the rectum and the vagina. In typical cases the diagnosis prior to operation is often easy. The age of the patient (usually between 30 and the menopause), the acquired dysmenorrhoea, (the disturbance of intestinal function during menstruation if some portion of the intestinal tract is involved), the detection of a small adherent ovarian cyst or adherent ovary, and the palpatory findings in the cul-de-sac, present a symptom-complex rarely furnished by any other condition.

In atypical cases or those dominated by some other and a more evident condition the adenomas may be easily overlooked. During the last year I have made a correct preoperative diagnosis in about half the cases. They may be classed among the common pathologic pelvic conditions as they are found in from ten to twenty per cent. of women between thirty years of age and the menopause who require an abdominal operation for some pelvic condition.

The treatment of this condition is an unsettled problem. In many instances the adenomas are chiefly of histologic interest and all of them probably cease to grow and actually atrophy

after the menopause. My present reaction on finding this condition at operation is not to disturb the implantations except as they may be easily removed for histologic study, but to deal with the pelvic organs as their condition indicates. I believe that the cases requiring intestinal resection are very rare, because the implantations will usually, possibly always, atrophy after all ovarian tissue is removed. Conservative ovarian surgery, at least in cases with intestinal involvement and extensive implantations, is attended with two sources of danger. The preservation of ovarian tissue leaves behind a possible source of further implantations, and it may also stimulate the growth of implantations which have not been removed.

THE SOURCE OF THE OVARIAN HEMATOMAS.

In the previous communication I described small hemorrhagic areas in the ovaries of three patients who had been operated upon during their menstrual period. Histologically, these areas proved to be due to hemorrhage about or into a space lined by tissue of endometrial type. I stated that I believed that these gland-like spaces were lined by epithelium of endometrial type, as shown by their structure and by their function (menstruation). I also stated that ovarian hematomas of endometrial type might arise from these misplaced structures. I have traced every stage in the development of ovarian hematomas of endometrial type from these structures of endometrial type which may react to the menstrual impulse. If these structures are situated near the surface of the ovary, perforation occurs while they are still small,—a few millimeters in size. Epithelium may escape into the peritoneal cavity from these miniature hematomas (hemorrhagic cysts) and give rise to implantations. Repeated hemorrhages and perforations may remove all the epithelial lining and thus destroy the cyst, so that this source of the implantation may not be evident at operation and may not be found in the examination of the ovaries in the laboratory, should they be removed. If the hematoma develops from an "endometrial" gland situated in the deeper portion of the ovary, then the hematoma may reach a larger size before perforation occurs. As the menstrual blood does not escape during the development of the cyst prior to perforation, many interesting changes take place in the walls of the hematoma, which I intend to fully describe in a later communication.

The following data may be offered as evidence that these ovarian hematomas are of endometrial type:

1. They arise from glands and tubules of endometrial type, in the ovary, which react to menstruation. Every histologic condition found in the lining of these hematomas

may be traced to the hemorrhage due to menstruation, the subsequent reaction on the oart of the ovarian stroma and the attempted regeneration of the epithelial lining.

2. Histologically, the lining of the ovarian hematomas is similar to that of uterine hematomas, due to retention of menstrual blood, often found in "adenomyoma" of the uterus.

3. They manifest their activity, as does the uterine mucosa, during the menstrual life of the patient.

4. The hemorrhages occurring in the ovarian hematomas are similar in gross and histologic appearance to that of menstruating endometrium. This hemorrhage is repeated, as shown by fresh blood and pigment, the latter an evidence of previous hemorrhage.

5. The histologic changes in the lining of the hematomas may correspond to the phase of the menstrual cycle indicated by the menstrual history of the patient.

6. Recently I removed a large myomatous uterus containing an early pregnancy (accidental finding). A perforated ovarian hematoma of endometrial type was situated in the left ovary. Typical decidual reaction was found in the lining of this hematoma and also, but to a less extent, in the peritoneal implantations of endometrial type.

7. The fact that implantation adenomas of endometrial type develop in the pelvis in places apparently soiled by the contents escaping from the perforated ovarian hematoma suggests that the epithelium giving rise to these implantations was derived from the contents of the hematoma, and therefore the hematoma was lined by epithelium of endometrial type. Cilia may sometimes be found on the epithelium lining the ovarian hematoma and also on that in the implantation adenomas.

How does this epithelium of endometrial type reach the ovary? Is it of developmental origin or is it acquired during the adult life of the individual? The theories as to the developmental origin of such epithelium are fully discussed by Russell in his report of a case of typical endometrial tissue found in an ovary (the first case reported in the literature). He refers to the work of Waldeyer and of Nagel who have shown that the epithelium of the Müllerian duct is exclusively derived from germinal epithelium. Russell makes the following conclusions in regard to the origin of the endometrial tissue in his case. "If we accept this view of Nagel it is not difficult to conceive that a portion of germinal epithelium which forms the ovary should, at times, attempt to produce structures which its function elsewhere calls upon it to do. Such an accident may be represented by simple tubes or spaces lined with ciliated columnar epithelium of the tube, or villous and papillary growth analogous to the mucous membrane of

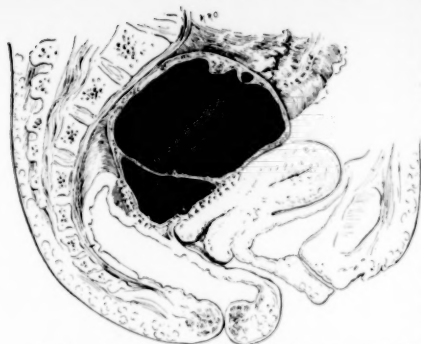


FIG. 1. Ovarian hematoma of endometrial type (perforated hemorrhagic cyst of the ovary) with pelvic implantation adenomas of endometrial type. Patient, aged 28, complained of severe dysmenorrhea during the previous year, which was increasing in severity. Bowel movements were associated with pain during menstruation. Prior to the operation the uterus was found to be pushed forward and to the left by a cystic tumor, as indicated in the illustration of a sagittal section of the pelvis. This tumor was adherent, and definite induration could be palpated in the endo-cyst, apparently involving the rectal wall at X. A correct preoperative diagnosis was made. On freeing the cyst, at the operation, a large amount of "chocolate" fluid escaped because a previous perforation had occurred, as indicated by the arrow. For implantations, see the next illustration (Case 4 of second series, not yet published).

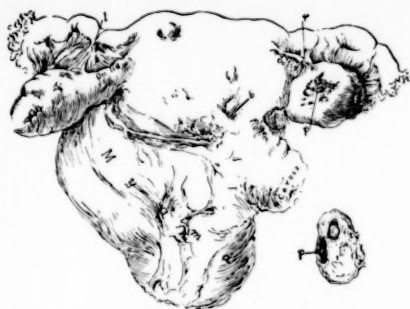


FIG. 2. Implantation adenomas of endometrial type, involving the posterior surface of the uterus, both broad ligaments, the left round ligament and anterior surface of the uterus; small perforated hematoma (of endometrial type) of the right ovary, multiple leiomyomas. Posterior surface of the uterus, tubes and ovaries (X1½). A puckering of the broad ligaments is indicated at I and at e, adenoma of endometrial type was found in this tissue and also in the implantations on the posterior and anterior surfaces of the uterus. The small hematoma of the right ovary with retraction indicates a possible source of these implantations. The patient, aged 41, complained of dysmenorrhea of three years' duration, increasing in severity. The preoperative diagnosis was an adherent myomatous uterus, and the ovarian hematoma with implantation adenomas were accidental findings at the operation (Case 22 of first series).

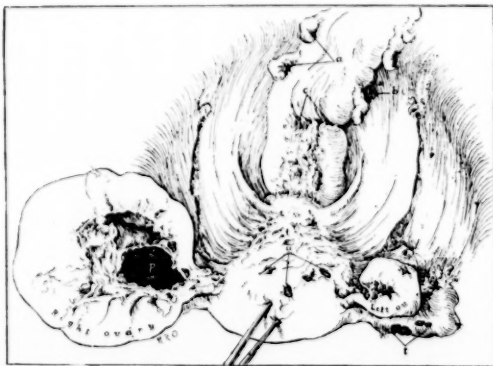


FIG. 3. Implantation adenomas of endometrial type involving the sigmoid (a), its mesentery, (b), and epiploic appendage, (c), the posterior surface of the uterus (u) and left tube (t); large hematoma of endometrial type of the right ovary with perforation (ep). The condition found at the operation (case shown in Fig. 1) is indicated after freeing the ovarian hematoma, ligating and cutting the ovarian vessels and drawing the uterus upwards and forward. The ovarian hematoma is shown partially collapsed. The distribution of the implantations is similar to that of an ovarian carcinoma with perforation, and I believe that the implantations in this case arose from epithelium escaping from the perforated ovarian hematoma, just as implantation carcinoma arises from epithelium escaping from the primary growth. For photomicrographs of the lining of the ovarian hematoma and the implantations of the uterus and tube, see Figs. 6, 10 and 11.



FIG. 4. Implantation adenoma (of endometrial type) in the cul-de-sac fusing the posterior surface of the retroflexed uterus to the rectum. Sagittal section of the pelvis ($\times 1\frac{1}{2}$). A perforated hematoma of endometrial type was present in the right ovary (Fig. 5). The adenoma in the cul-de-sac apparently arose from the escape of the contents of the ovarian hematoma. It has invaded the posterior wall of the uterus, forming an "adenomyoma," and

might extend posteriorly, invading the rectum or down between the rectum and vagina, forming the so-called adenomyoma of the recto-vaginal septum. The patient, aged 44, complained of marked constipation, worse at the menstrual periods, and some pain at that time. The induration in the cul-de-sac was detected prior to operation and led to a probable diagnosis of the condition present (Case 21 of first series).

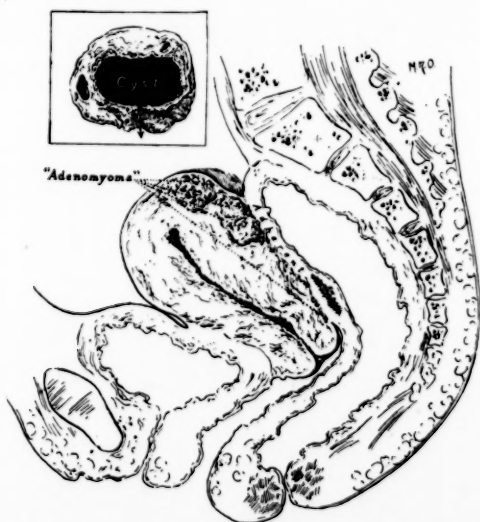


FIG. 5. "Adenomyoma" of the posterior uterine wall which is fused to the anterior wall of the rectum; perforated hematoma of endometrial type of the right ovary (see insert). Sagittal section of the pelvis ($\times 1\frac{1}{2}$). The adenoma of endometrial type apparently arose from the escape of the contents of the ovarian hematoma into the cul-de-sac. It has fused the uterus to the rectum and has invaded the former to a greater extent than the latter. A distinct nodule (X) was found in the anterior wall of the rectum. I

believe it was a nodule of adenomatous tissue. It was not removed. The patient, aged 36, complained of increasing constipation of six months' duration, but no pain. The preoperative diagnosis was dense pelvic adhesions (chronic pelvic peritonitis) with the possibility of implantation of cancer of the cul-de-sac, or cancer of the rectum at the junction of the rectum and sigmoid (Case 12 of first series).



FIG. 6. Photomicrograph of a portion of the wall of the perforated ovarian hematoma shown in Figs. 1 and 2. Here it is lined by cuboidal to columnar epithelium with an underlying stromal hemorrhage (menstrual). The epithelium is similar to that lining the adenomas of the implantations. In other portions of the wall of the hematoma the epithelium is lacking, having been carried away by the underlying hemorrhage rupturing into the cavity of the hematoma. An ovarian gland resembling a uterine gland was found in the wall of the hematoma.



FIG. 7. Photomicrograph of a portion of the wall of the perforated ovarian hematoma shown in Fig. 3. It is lined by a single layer of cuboidal to columnar epithelium with an underlying cellular stroma. A structure, resembling a uterine gland, is present in this stroma. The hematoma is of endometrial type, as shown by its structure and function (menstruation). The escape of epithelium, with the hemorrhagic contents of the hematoma, through the perforation, could have caused the implantation adenomas shown in Fig. 5.



FIG. 8. Photomicrograph of a portion of the wall of the perforated ovarian hematoma present in the specimen shown in Fig. 4. The hematoma was about 2 cm. in diameter, lined for the most part by a pigmented layer of ovarian tissue without an epithelial covering. The pigment was due to a previous hem-

orrhage. Near the site of the perforation a columnar epithelial lining was present and in a few places glands were found as shown in this illustration. Cilia were present on some of the cells lining the hematoma, and also on some of the epithelium in the implantations.



FIG. 9. Photomicrograph of a portion of the lining of a pocket in the periphery of the ovary near the perforation of an ovarian hematoma of endometrial type. I believe it is an implantation adenoma from the perforation of the ovarian hema-

toma. Other implantation adenomas from the same case are shown in Figs. 12 and 13 (Case 19 of the first series and Case 3 of the second series).



FIG. 10. Photomicrograph of implantation adenoma of endometrial type invading the posterior wall of the uterus, from specimen shown in Figs. 1 and 2.



FIG. 11. Photomicrograph of implantation adenoma of endometrial type invading the Fallopian tube. Tube shown in cross section with adenoma invading the wall of the tube from its surface. From specimen shown in Figs. 1 and 2.



FIG. 14. Photomicrograph of a "gland" of endometrial type in the periphery of an ovary. It is lined by columnar cells, some of which are ciliated. Hemorrhage is present in the tissues about the gland. The patient was menstruating at the time of the operation. Ovarian hematomas of endometrial type develop from these structures. If they are situated near the surface, as this one is, perforation occurs while they are small, as shown in Fig. 16. If situated in the deeper tissues of the ovary, the hematoma may reach a large size before perforation, as shown in Figs. 1 and 2.

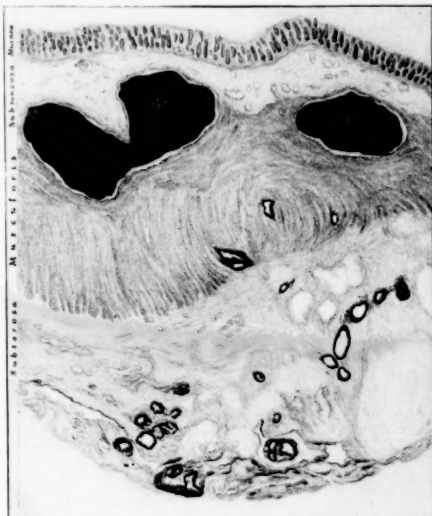


FIG. 12. Adenoma of endometrial type of the sigmoid invading the wall of the intestine from its peritoneal surface and "worming" its way through the subserosa and muscularis and giving rise to hematomas (H.L.) in the submucosa. From the same case as the illustration shown in Figs. 9 and 13. The patient, aged 45, gave a history of acquired dysmenorrhoea of two years' duration, associated with marked constipation amounting to partial intestinal obstruction at that time.

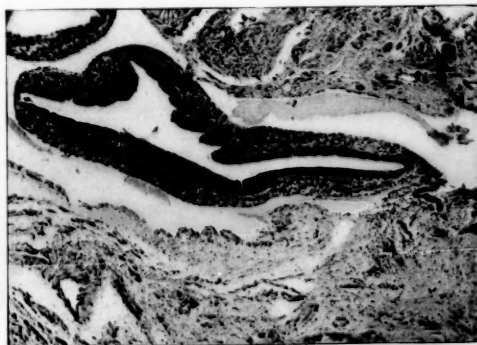


FIG. 13. Photomicrograph of an adenoma of endometrial type invading a lymph vessel of the broad ligament. The adenoma appears as a polyp; a portion of another polyp is also shown in the same vessel. This explains a possible source of metastatic adenomyoma which is sometimes found in the groin.

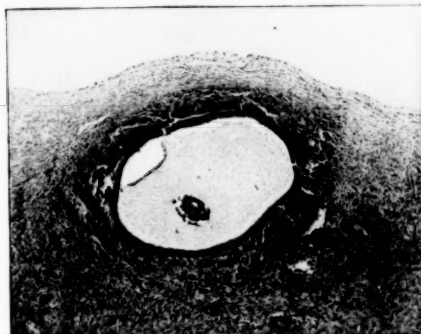


FIG. 15. Photomicrograph of a dilated gland of endometrial type with hemorrhage into the tissues about it and evidence that some of the blood had escaped into the lumen of the gland. It is a miniature hemorrhagic cyst of endometrial type. It is lined by cuboidal and columnar epithelium. Many of the cells were ciliated.

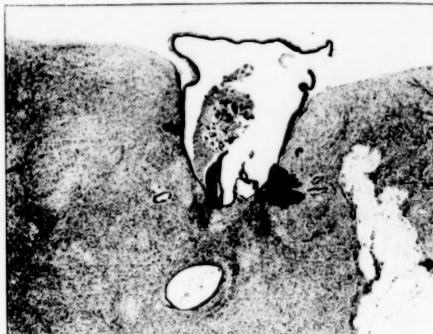


FIG. 16. Photomicrograph of the periphery of an ovary, showing a small ovarian hematoma of endometrial type which is about to perforate (lower magnification than the preceding). Glands of endometrial type are present in the ovarian tissue about the hematoma. The wall of the hematoma was torn in cutting the section. Other small hematomas were found in the ovaries of this specimen, some of which had perforated. Implantation adenomas of endometrial type were found in the cul-de-sac where material escaping from the perforation of these hematomas would be apt to lodge. Small, perforated ovarian hematomas of endometrial type may be easily missed, not only at the time of the operation, but even in the study of the ovaries in the laboratory.

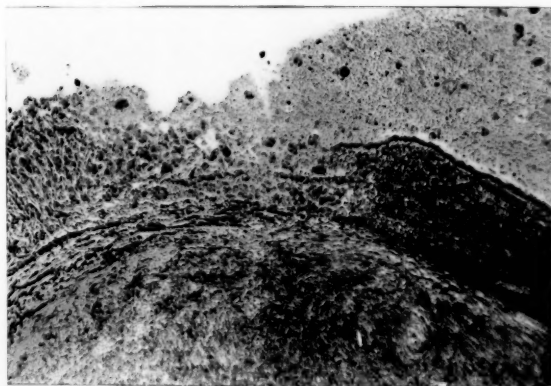


FIG. 17. Photomicrograph of a portion of the wall of an ovarian hematoma of endometrial type, about 1.5 cm. in diameter, which had not perforated, showing the origin of the pigmented luteal-like lining often found in many of these hematomas. The patient was menstruating at the time of the operation. To the right, the epithelial lining is still present with an underlying stroma hemorrhage. In the center, endothelial leucocytes have developed and are pouring into the cavity of the hematoma. To the left, the luteal-like pigmented layer is forming, which is composed, for the most part, of endothelial leucocytes containing blood pigment.

the tube or even the more complicated structure of the uterus, glands, intraglandular connective tissue and muscle. In the specimen which I have described there is a collection of glands in a groove on the surface of the ovary. The epithelium covering them is continuous with a simple layer of columnar cells at the margin of the groove and extends a short distance over the surrounding surface. Thus we have direct proof that the germinal epithelium is capable of producing glands analogous to those of the uterine mucosa."

Tubules are sometimes present in the hilum of the ovary which are apparently of Wolffian body or duct origin, and these might be considered as a source of tissue of endometrial type in the ovary.

Some of the fimbriae of the tube are often adherent to or in contact with the surface of the ovary. Epithelium from this source might be stimulated to invade the ovarian tissue beneath it just as the epithelium lining the tube may sometimes invade its walls, giving rise to so-called adenomyoma of the tube. It is possible that these glands and tubules of endometrial type, from which ovarian hematomas develop, may arise from any or all of the above-mentioned sources.

The data which I have been able to obtain suggest that tubal and uterine epithelial cells may, under certain circumstances (as an abnormal menstruation with a back flow through the tube), be expelled from the fimbriated end of the tube and lodge on the surface of the ovary. They may become imbedded in the tissues of the ovary and, true to their type, form glands and tubules which actually invade the ovary. The process is analogous to that which results from the implantation of epithelial cells on the peritoneum from the perforation of ovarian hematomas of endometrial type, as described in the previous and also in this communication.

This theory as to the implantation origin of these tubules, which give rise to hematomas of endometrial type, from tubal or uterine epithelium escaping from the tube, is based on the following data.

Epithelium may sometimes be found on the surface of the ovary invading the underlying tissue. This epithelium may be ciliated, sometimes resembling more closely that of the tube and at other times that of the uterus. This epithelium may invade the ovary in the form of tubules. The ovarian tissue about the epithelium on the surface of the ovary, as well as that about the tubules in the deeper portions, may sometimes react to menstruation.

These hematomas rarely develop in women under thirty years of age; if they were of developmental and not of acquired origin we would expect them to occur in younger women, soon after puberty.

They develop during the menstrual life of the patient (usually the latter part), when tubal and uterine epithelium would be more likely to escape from the fimbriated end of the tube, than before puberty and after the menopause.

The uterus in these cases is often retroflexed, contains leiomyomas and polyps; conditions which might favor a back flow of menstrual blood.

In the fifty-two cases of perforated ovarian hematomas, which I have studied, the tubes were apparently patent in all, suggesting that this avenue for this source of implantation was open.

These hematomas are often bilateral and usually perforate on the lateral or the under surface of the ovaries, the portions of the ovaries most apt to be infected by material escaping from the lumen of the tube, as well seen in the ovarian adhesions found in pelvic inflammatory disease secondary to salpingitis.

Implantations of endometrial type arise on the peritoneal surface of the pelvic structures from the escape of the contents of an ovarian hematoma of endometrial type and, furthermore, similar implantations may occur in the ovary with the perforation, and the opposite one from this source. These implantations, involving the ovaries from this source, simulate the original development of the ovarian hematomas but are usually more virulent. As implantations arise from the perforation of the ovarian hematomas, so may ovarian hematomas arise from implantations. The most obvious source of these implantations is from or through the Fallopian tube.

The study of these cases, both at the time of the operation and in the laboratory examination of the specimen removed, usually shows a perforated ovarian hematoma with implantation adenomas of endometrial type. The extent of the distribution of the implantations usually varies with the size of the ovarian hematomas and the size of the perforation. The larger the hematoma and the larger the perforation, usually the greater the extent of the distribution of the implantations. In forty cases of perforated ovarian hematomas of endometrial type with perforations, in which I have studied histologically the tissues involved in the adhesions apparently resulting from the escape of the contents of the cyst, adenoma of endometrial type was found in all but one specimen. On the other hand, in three cases of typical ovarian hematomas of endometrial type, without any evidence of perforation, adhesions were not present and there was not any gross evidence of implantation adenomas; the pelvis was examined very carefully in each instance.

May pelvic implantation adenoma of endometrial type occur from other sources than from a perforated ovarian hematoma of endometrial

type? I believe they do, although it is difficult to exclude the ovarian source in any case. The ovarian hematoma may be very small, a few millimeters in diameter, or, as the result of repeated hemorrhage and loss of epithelium, they may become still less evident and may entirely disappear. Up to date (January 1, 1922), I have found eight instances of small adenomas of endometrial type in the cul-de-sac without gross evidence of a perforated hematoma of the ovaries. One or both ovaries were removed in all but one case. In the ovaries of three of the seven cases, which were examined, tubules of endometrial type were found, which I interpreted as the possible remains of a small ovarian hematoma which had perforated, or they were tubules which had not developed into hematomas. In a fourth specimen an area containing pigmented cells was found in the ovary, which suggested the remains of a small ovarian hematoma. In the other three cases tubules of endometrial type were not found in the ovary and there was not any evidence of a previous stromal hemorrhage. These may have been missed, as serial sections of the ovaries were not made. It was interesting to note the character of the implantations when there was no gross evidence of an ovarian hematoma with perforation. They were usually smaller and not as widely distributed as those generally found in the pelvis associated with ovarian hematomas with evidence of perforation. They also often presented a little different histological picture. The implantations apparently derived from the perforated ovarian hematoma are usually more active and rapidly growing. I believe that implantations from both sources may have been present in some specimens. These latter observations are, to me, the most convincing evidence that the ovarian hematomas may arise from tubal or uterine epithelium escaping from the tube (a possible result of internal menstruation).

My interpretation of the usual origin and development of implantation adenomas of endometrial type is as follows:

Tubal and uterine epithelium may at times escape into the peritoneal cavity through the fimbriated end of the tube. It lodges where such material would be likely to fall, especially on the lateral surface of the ovary and in the cul-de-sac, the distribution corresponding to the distribution of pus escaping from the tube in salpingitis. Adenoma may develop wherever this epithelium falls on suitable "soil." We may, therefore, have implantations only on the ovary, especially on its lateral surface and free border. They may occur both in the ovary and in the pelvis or in the pelvis alone. The tubules arising in the ovary may develop into hematomas which usually perforate and give rise to implantation adenomas apparently usually more invasive (virulent) and with a

wider distribution than the implantations found without evidence of an ovarian hematoma. I consider the ovary as a sort of intermediary host, hothbed or incubator which imparts greater virulence to the epithelial cells developing in it, but it may not be an essential intermediary host in the origin of implantation adenomas of endometrial type.

We may go a step further in the interpretation of the ovary as an intermediary host or incubator. The epithelium lining the Fallopian tubes, the body of the uterus and its cervix have a common origin, yet differ in structure and function. If the ends of the tube become occluded, a cyst (hydrosalpinx) develops, rarely a hemato-salpinx. If the cervix becomes occluded during the menstrual life of the patient a hematometra develops. If a cervical gland becomes occluded, a retention cyst filled with the secretion of the cervix arises. I have described the development of endometrial hematomas (hemorrhagic cysts) from these tubules of endometrial (Müllerian) type in the ovary. We realize that ovarian cysts are found with a lining and contents which resemble that of a hydrosalpinx and that other cysts occur with a lining and contents similar to that of a retention cyst of the uterine cervix. Also some ovarian carcinomas resemble histologically those arising from the endometrium and may even contain ciliated epithelium. Can these all have a common origin from these tubules of endometrial (Müllerian) type in the ovary; and, furthermore, is the ovary an intermediary host (chemical laboratory) which in one instance causes these tubules to develop into endometrial hematomas, in another into a serous cyst lined by ciliated epithelium similar to a hydrosalpinx, and again into a cyst resembling the retention cyst of the uterine cervix and in another instance into an adenocarcinoma?

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MODIFICATIONS OF APPARATUS AND IMPROVED TECHNIC ADAPTABLE TO THE BENEDICT TYPE OF RESPIRATION APPARATUS.

PAPER I.—VALVES VERSUS THE ELECTRIC IMPELLER.

PAPER II.—TECHNIC.

PAPER III.—GRAPHIC METHOD FOR THE ESTIMATION OF THE METABOLIC RATE.

PAPER IV.—MOISTURE ABSORBING EFFICIENCY OF CO₂ ABSORBENTS.

By PAUL ROTH, M.D., BATTLE CREEK, MICH.

Paper I.

VALVES VERSUS THE ELECTRIC IMPELLER.

A VAST amount of literature is at present available on the subject of metabolimetry. Its clinical value is unquestioned but its field of usefulness is as yet relatively little explored. The number of investigators is rapidly increasing, due to the most promising nature of this field of research and to the simplification and perfection of apparatus and technic required. The most valuable contributions to this latter phase of the subject are those of Dr. F. G. Benedict and his associates at the Carnegie Nutrition Laboratory of Boston, Massachusetts.

The *raison d'être* of Benedict's Universal Respiration Apparatus¹ (Fig. 1) followed by the Portable Apparatus,² (Fig. 2) and later by the "New Portable"³ (Fig. 3) is thoroughly discussed in the references to the literature given, which the interested clinician and more particularly the technician are urgently advised to consult. Fig. 4 shows how the older model shown in Fig. 2, can readily be transformed with little expense into the newer model.⁴

Thousands of clinical observations with these three models as well as comparative determinations made with the gasometer type, as is used in the so-called "Tissot Method", have given us ample proof of the soundness of Benedict's Method.

Year after year I have had the opportunity to watch the evolution of this type of apparatus and realize the enormous amount of work which has been persistently carried on for nearly fifteen years by Benedict and his associates to introduce and perfect both the apparatus and the technic. Not only was it necessary to overcome mechanical difficulties but also to settle by exhaustive lines of research, various physiological problems involved. Much prejudice and skepticism had to be met from the beginning, and it is ever with extreme caution that Benedict has given to the scientific world the fruits of his labor. His claims have been modest, particularly with regard to the "portable," and it is only after exhaustive trials and in the pres-

ence of abundant technical and clinical evidence that he now comes forward with the statement that "oxygen consumption of patients may be studied by this apparatus in the customary 10 to 15 minute periods, with an accuracy fully equal to other standard methods of studying the respiratory exchange."⁵

In a report of a thorough comparative study of two standard methods and apparatus, Hendry, Carpenter and Emmes make the following statements: "When the basal metabolism only is desired, it is an economic waste to attempt any other measurement than that of the oxygen absorption supplemented by the controls we have recommended;" and "When the measurement of oxygen consumption alone is desired the Benedict Portable Respiration Apparatus is the best apparatus for short period measurement."⁶

While several of the numerous modifications suggested for this apparatus have been adopted with most satisfactory results, yet there has been a tendency on the part of some manufacturers to introduce simpler models at the cost of a very serious loss of accuracy.

Over a year ago while putting the "New Portable" to a test in a series of clinical observations reported in this Journal,⁷ I started an investigation on the possibility of dispensing with the electric air impeller by installing valves in this type of apparatus. I venture to present this modification of the New Portable with confidence that precision is fully preserved, as shown by carefully conducted comparison tests and with the conviction that its evident advantages will be readily appreciated.

The use of valves in some forms of respiration apparatus is absolutely indispensable, and is by no means new. In fact, it long preceded the valveless, motor-driven type of apparatus. The mere presence in the circuit of a pair of freely acting valves with adequate openings, does not, to any appreciable degree, interfere with the free and easy passage of air through the apparatus when in use. The possibility of eliminating all motive power in order to obtain adequate ventilation has been entertained by other observers.

Years ago, Dr. T. M. Carpenter made a similar attempt with this type of apparatus equipped for the determination of the CO₂ eliminated, as well as of the oxygen consumed. He informs me that it was not because the oxygen consumption was increased that the valves were not adopted, but because he believed that the respiratory quotients could not be determined accurately enough with that type of apparatus.⁸

Dr. J. H. Means of Boston, writes me that he has made use of the valves in place of the motor, with good success in demonstrations of respiratory phenomena.

The "New Portable" lends itself admirably to the adaptation of valves. In fact, when resorting to valves to direct the air through its cir-



FIGURE 1.—Benedict's Universal Respiration Apparatus and Timing and Recording devices, Carbon Dioxide Absorber, Electric Oxygen consumption and Carbon Dioxide elimination.

Accessories: Oxygen Tank, Bohr Meter, Spirometer, Kymograph, Motor and Air Blower, and Balances. For the determination of

cuit, nothing else is required than is demanded by the air impeller. *Impacted soda lime, too long and too narrow metal or rubber tubings and connections, improperly counter-balanced spirometer bell, obstructions due to kinks or to the accumulation of condensed moisture, etc., all these must be equally well guarded against whether valves or impeller is used.*"

The type of valve finally adopted is shown in Figure 5. Boothby and Collins have devised a metal housing for it. Over a year ago my assistant, Mr. C. H. Peet, mounted several of them for me at a nominal cost. Two pairs have since that time been in constant use with two gasometers of the Boothby-Sandiford type. They have never failed to give perfect satisfaction and so far have required no attention. The glass housing of one of them was accidentally broken recently and the rubber valve was found to be apparently in perfect condition. Bailey uses the same "flutter valve" enclosed in flattened glass cases. A celluloid housing can also be provided, I understand.¹⁰

DESCRIPTION OF THE VALVE.

Operates freely in all positions, absolutely noiseless, closes instantaneously and without hammering, 100 per cent. efficient, simple and inexpensive.

Bottle without bottom— $3\frac{1}{2}$ inches (with neck 5 inches). Internal diameter $1\frac{3}{4}$ inches. Metal

or glass tubing, $\frac{3}{4}$ inch outside diameter, 2 to 3 inches long. Rubber stopper, and rubber valve.¹¹ Should be wired together if used where it is likely to be pulled apart. The valves may vibrate if the stem is not drawn far enough over the tubing. When properly mounted it will never stick. This type of valve has shown its absolute efficiency and reliability in mine rescue work and in the world's war, as one of the vital parts of the gas mask.

Comparing Figs. 4 and 6, one will readily appreciate how simple is the elimination of the air impeller and the adaptation of the valves in the New Portable. Everything considered, the location of the valves as shown in Figs. 4 and 6, seems to be the best. In expiration the valve, inserted in one of the rubber tubings, closes and the air passes through the other tube, then through the CO_2 absorber, which is inside the spirometer chamber when in use. The expired air then enters this chamber through the second valve located on top of the absorber, the spirometer bell rising during each expiration. During inspiration the bell falls, the air being drawn out of the chamber through the outlet at the bottom, and passes through the other valve on its way back toward the mouth piece.

Resistance to the respiratory movements however insignificant it may be, is, for physiological reasons, far less noticeable to the subject during expiration than with inspiration. When

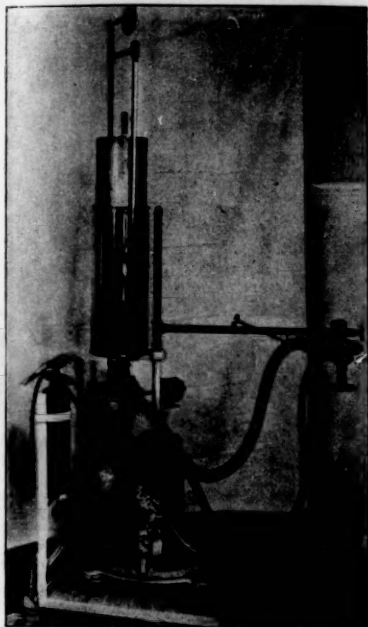


FIGURE 2.—Benedict's "Old" Portable Respiration Apparatus, on small truck. With External Air Impeller, two Calcium Chloride "Moisture" Absorbers, one Soda Lime "Carbon Dioxide" Absorber, Small Oxygen Cylinder. Intended for estimating "Carbon Dioxide" elimination as well as Oxygen consumption.

only a slightly noticeable resistance to respiration occurs either with the impeller or with the valves, the subject readily becomes totally unconscious of it and the metabolic rate is not perceptibly affected. This is well shown in the comparative results obtained with the air impeller and with the valves.

A series of such observations were made in the summer of 1920 with two trained and two untrained subjects. To better compare the relative accuracy of the apparatus with valves and with electric air impeller, a more exhaustive set of tests were made with two well trained subjects four months later. Both series comprising 45 tests are reported in a condensed form in Table 1.

The 45 tests given in this table are 45 composite periods, each being the average of 3 distinct but overlapping periods established by taking three successive spirometer readings at the start, and three final readings about 10 minutes later. The pulse and the respiration rates given are also averages of from 4 to 8 counts for each. From December 30 to January 5, (tests Nos. 11 to 45) each day's observations consisted of 6 composite periods (5 on Dec. 30). Three of

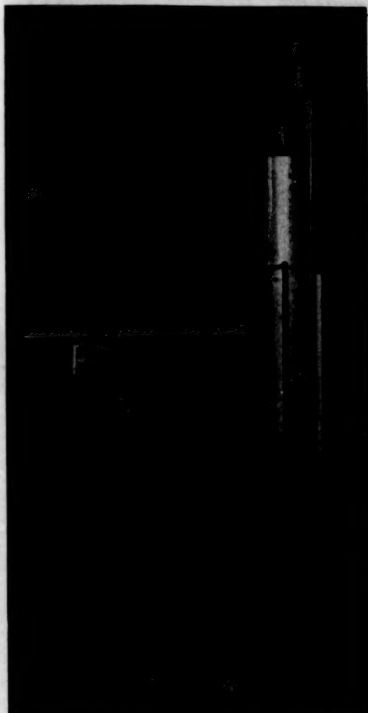


FIGURE 3.—Benedict's "New" Portable Respiration Apparatus. Mounted ready for use. The Electric Air Impeller and the Carbon Dioxide Absorber are located inside the Spirometer chamber.

such periods with the valves, immediately followed or preceded a like number with the impeller. All six periods followed each other in close succession in the order indicated by the serial numbers.

To facilitate the comparison of the results each group of three tests is again averaged. There is no proof that the relatively small differences obtained might be due to the use of valves or impeller. The total average for the O_2 consumption per minute was 224 c.c. when the valves were used, as against 225 c.c. with the impeller.

When changing from the valves to the impeller, or *vice versa*, both the pulse and respiration, which are so readily influenced by even slight disturbing factors, failed to register any significant altered rate. Nevertheless, differences were obtained, the highest on January 2, amounting to less than 5 per cent. It must be admitted that such a variation might well happen in a like series of tests run throughout with one and the same apparatus. The chief

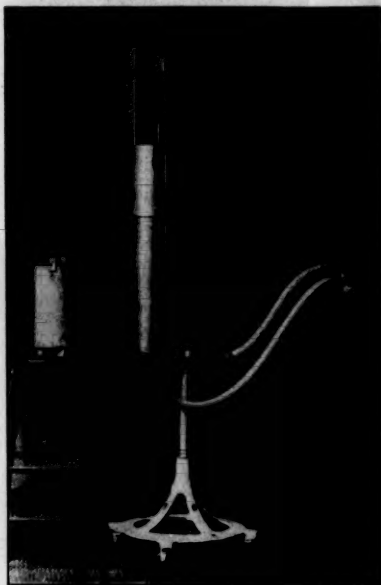


FIGURE 4.—An "Old" Benedict Portable, remodeled to conform to the "New." In operation the Air Impeller and the Carbon Dioxide Absorber shown on the stool are placed inside the Spirometer chamber.

and only appreciable cause for the differences recorded is strikingly put in evidence when the tests are tabulated in the order in which they were made each day, irrespective of whether the valves or the impeller were used first or last. It will be noticed that with the exception of August 19, which shows a difference of less than $2\frac{1}{2}$ per cent., and January 4, with one of less than $\frac{1}{2}$ per cent., all the other days' comparisons show a tendency to a higher rate of oxygen consumption and also of the pulse and respiration rate during the second series of the day's observations, irrespective of the method or apparatus used.

The total average for the O_2 consumption per minute was 222.5 c.c. for all first tests (a) as against 226.4 c.c. for all the corresponding second tests (b). The average for the pulse and the respiration is the same in both groups. A possibility of this kind was anticipated and the precaution taken to reverse, each day, the order of procedure, using the valves first one day and the impeller first on alternating days. Consequently the chief causes of the variations recorded are not to be ascribed to the kind of apparatus but to the tendency of the subjects to become slightly restless, an occurrence which might well be expected in prolonged observations of this kind.



FIGURE 5.—Improvised Respiration Valve. Adaptable to various types of Respiration Apparatus, including the "Gasometer" type.

That the apparatus does give uniform and closely comparable results with the valves as well as with the impeller, has further been shown in many observations made during the past few months with clinical cases of all kinds. Results have also been checked in many such cases by the "Gasometer Method" with most satisfactory agreements.

The advantages in the use of valves as here suggested with Benedict's New Portable Respiration Apparatus, briefly stated, are the following:

1. Its use is available independent of any electrical energy or other source of mechanical power without the sacrifice of efficiency or of any degree of accuracy.
2. It is absolutely noiseless in operation. This is an advantage which is readily appreciated by operators as well as by nervous individuals, of whom there are a goodly number in the cases in which the use of the apparatus is indicated.
3. While no claim is made for any superiority in the accuracy of the results to be obtained by the use of valves in this type of apparatus, the even temperature of the circulating air maintained during a test period in the absence of the heating effect of a motor, should be recognized as a technical advantage.
4. Once properly adjusted the valves require practically no attention. We have had more or less trouble with impellers whether installed inside or outside the ventilating circuit, though we have, so far, run over one thousand tests

1920 Subject Date	With Valves				With Electric Air Impeller			
	Test No.	O ₂ cc. per min.	Pulse per min.	Resp. per min.	Test No.	O ₂ cc. per min.	Pulse per min.	Resp. per min.
F.R. July 29	a 1	203	58	16	b 2	212	61	17
H.O.B. Aug. 18	b 4	212	60	13	a 3	208	59	13
J.M.C. Aug. 19	a 5	255	51	15	b 6	249	50	14
H.O.B. Aug. 20	b 8	225	65	13	a 7	234	64	13
F.H.S. Aug. 29	a 9	259	58	13	b 10	260	54	13
H.O.B. Dec. 30	11	228	68	15	14	234	68	14
	a 12	228	67	13	b 15	225	69	14
	13	230	68	12				
	Ave.	219	65	13	Ave.	225	69	14
H.O.B. Dec. 31	19	223	67	13	16	215	64	14
	b 20	223	68	13	a 17	225	67	13
	21	224	67	14	18	223	65	14
	Ave.	223	67	13	Ave.	221	66	14
H.O.B. Jan. 3 1921	22	217	64	13	25	236	64	14
	a 23	221	64	13	b 26	226	66	14
	24	217	63	13	27	230	67	13
	Ave.	218	64	13	Ave.	226	66	14
H.O.B. Jan. 3	31	234	64	13	28	215	65	13
	b 32	223	65	13	a 29	216	63	14
	33	222	67	14	30	219	61	14
	Ave.	223	65	13	Ave.	216	62	14
H.O.B. Jan. 4	34	223	66	13	37	224	67	14
	a 35	226	67	13	b 38	222	66	14
	36	226	66	13	39	221	68	14
	Ave.	223	67	13	Ave.	222	66	14
F.R. Jan. 5	43	204	60	13	40	200	67	14
	b 44	200	60	15	a 41	203	68	14
	45	202	62	14	42	201	64	14
	Ave.	202	61	14	Ave.	201	66	14
Total Ave.		224	62	13.6	Tot. Ave	225	62	14.0
		First Tests	(a)			Second Tests	(b)	
Total Ave.		222.5	62	13.6	Tot. Ave	226.4	62.2	13.8

TABLE 1.—The Use of Valves Replacing the Electric Air Impeller in Benedict's Respiration Apparatus. A Comparison of Results.

with the impeller inside the circuit, without a single fire.

DESCRIPTION OF THE APPARATUS WITH VALVES.¹²

Fig. 7 shows the apparatus ready for use. It is placed on a table or stand by the bedside. Adjustment of the mouthpiece to the proper height is obtained by raising or lowering the horizontal support. The metal mouthpiece assembly slides on the horizontal bar, and can easily be removed for sterilization.

The location of the valves is given in the diagram, and the housing of the one placed outside and under the spirometer is plainly illustrated. Note the special feature of a central, yet individual opening to or from the spirometer chamber for each tube.

Fig. 8 shows how the apparatus is readily compacted for carrying. This illustration shows

the absorber taken out of the spirometer chamber.

For protection against breakage in carrying, the thermometer can be readily removed by merely unscrewing it.

With but one or two exceptions the various "makes" of respiration apparatus now on the market are of two distinct types:

1. The "Gasometer type", the use of which demands an accessory outfit for the analysis of the air collected in a Gasometer during a test.

2. The "Spirometer type", established by Benedict for the chief purpose of avoiding air analysis.

This second type with its delicate spirometer is perfectly adaptable without modification for the estimation of the "Vital Capacity", the clinical value of which is now strongly emphasized.¹³

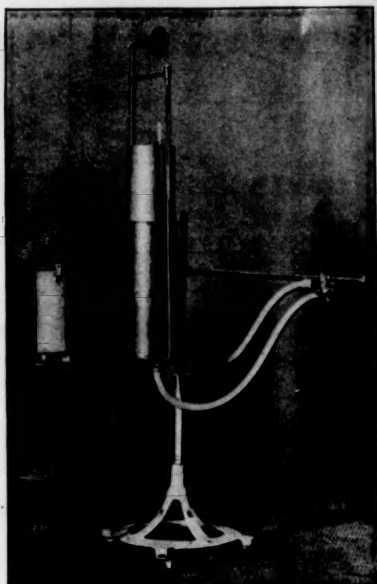


FIGURE 6.—Remodeled "Old" Portable, fitted with Valves. Compare with Figures 2 and 4.

The apparatus should also prove entirely satisfactory for the administration of oxygen in pathological conditions as advocated by Barach and Woodwell,¹⁴ and Haldane.¹⁵

SUMMARY

The adaptation of valves in the Benedict type of respiration apparatus (discarding the electric impeller) is shown to be very practical while fully preserving its precision for the estimation of the metabolic rate.

The "valve" apparatus, with other minor modifications, is described and its advantages briefly presented.

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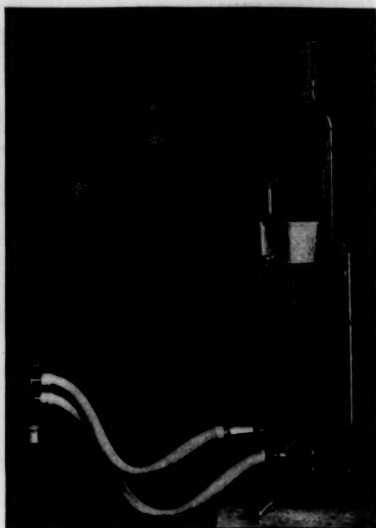


FIGURE 7.—The Benedict (Roth Modification, with Valves), ready for use.

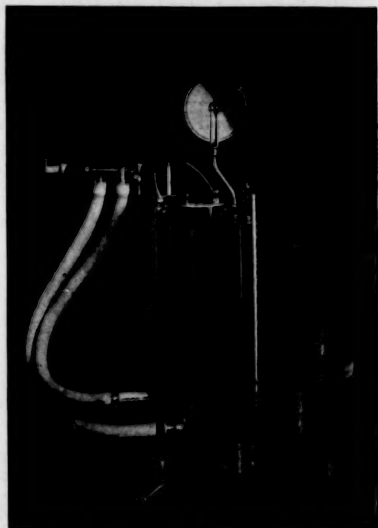


FIGURE 8.—The Benedict (Roth Modification, with Valves), ready for carrying. The Absorber, which in use and in carrying, is inside the Spirometer, has been removed for illustration.

9. I wish also to emphasize that while it is readily appreciated that an inefficient air impeller or one which is running at too low a speed will inevitably give trouble, some operators ignore the fact that too strong an air current may, on the other hand, cause pressure in the region of the mouthpiece sufficient to require quite an effort in expiration to overcome it. A properly regulated impeller will insure, in a well conditioned apparatus, a freedom in respiration which cannot be improved upon in any other form of apparatus, whether the mask or the mouthpiece is used.
10. Jour. of Lab. and Clin. Med., Vol. 6, No. 12, p. 664, Sept., 1921, and Jour. Biol. Chem., Vol. 47, No. 2, p. 278, July 1921.
11. From the Mine Safety Appliance Company, Pittsburgh, Pa.
12. The adaptation of valves in the apparatus, has opened the way for other modifications in its construction. I am greatly indebted to Mr. Warren E. Collins, for the mechanical skill which he has displayed not only in faithfully embodying the suggestions which I have offered but in introducing in its construction certain ingenious features which simplify the care of the apparatus and, to some extent also, its manipulation. Mr. W. E. Collins, 584 Huntington Ave., Boston, Mass., manufactures the Benedict type of respiration apparatus either with the electric impeller or with the valves.
13. Dryer, G.: The Normal Vital Capacity in Man and Its Relation to the Size of the Body, *Lancet*, Aug. 9, 1919. Peabody & Wentworth: The Vital Capacity of the Lungs and Its Relation to Dyspnea, *Arch. Int. Med.*, Vol. 20, 1917, p. 443.
14. Barach & Woodwell: *Arch. Int. Med.*, Vol. 28, No. 4, pp. 367-425, Oct., 1921.
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Paper II.

TECHNIC

While it is an easy matter to make a good operator of an individual having no more than a high school education, the work should be under the direction of some one familiar with all the technical phases of the subject, and who is acquainted at least with the literature referred to in this series of papers.

Assemble the apparatus as illustrated in Paper I. Make sure that all connections are tight. The rubber tubing does not need to be wired in place if it fits tightly. Parts to be washed or sterilized after each patient can thus be readily removed. Fill the sealing chamber with water to about 4 inches from the top. The absorber is the most vital part of the apparatus and demands systematic attention. Use only well-sifted material and free from powder. Too coarse a grade of soda lime must also be avoided, that averaging the size of a pea being best. A dish shaped screen is provided for each can and should be properly in place, bottom side up, at the bottom of the can. Unless the material used is of a finer mesh than that recommended, the can may be filled completely. The kind of absorbent which is best for absorbing moisture as well as carbon dioxide is discussed in Paper III. of this series.

No very definite directions can be given with regard to the number of determinations which can be made with each fresh charge of the absorber. This depends upon the quality and the amount of material used, and also on the average duration of the tests. We have run from only 8 or 10 to over 75 tests of about ten to twelve minutes duration, on one charge, before

CO₂ could be detected in the air after it passed through the absorber.

A record should be kept of the number of tests run with each charge. Before it has reached the limit of its efficiency the air left in the spirometer chamber should be expelled at the end of each test through the O₂ cock into a test tube containing a few c.c. of barium hydroxide. When the presence of CO₂ is detected the charge in the absorber should be renewed.

Increased amplitude and rate of respiration during a test indicate accumulation of CO₂ in the circulating air due to an exhausted absorber or insufficient ventilation.

After filling, seal the can with the wide rubber band. Examine the valve. The lateral slits should barely come in contact with each other. This may be regulated by drawing the valve more or less over the metal tube. If properly adjusted, the valve will be absolutely noiseless and will never stick. The lateral slits may perhaps be enlarged to advantage by trimming the valve almost to a point with scissors.

See that the rubber gasket on the inlet at the bottom of the spirometer chamber is in place. Screw the can in fairly tight. Twice a week, or oftener if necessary, examine the contents. If material adheres to the screen and cannot be dislodged by shaking, empty the can, clear the screen and refill. If the contents are found to be relatively fresh yet, they can be returned to the can after removing only the caked or used-up portions and adding some fresh material. Have an extra container ready to replace the one in use when needed.

The operator should make it a practice of daily routine to himself breathe into the apparatus for a few seconds to ascertain whether the absorbers and all connections are unobstructed and permit of free breathing. No other test for ventilation is necessary.

As water of condensation may collect in the lower tube which carries the expired air directly to the absorber, it should be drained occasionally.

The technic is relatively easy and as far as the manipulation of the apparatus is concerned, is soon acquired. Success, however, depends primarily in securing and maintaining the basal conditions required in the subject. Tact, good judgment, self control, and a pleasing personality are indispensable in the operator. On the whole, girls are very adaptable to this type of work. But good equipment, good technic and the successful completion of an estimation is merely a good beginning towards a "worth-while" clinical application of the test. The clinician himself need not be a trained technician in metabolimetry but he should have a clear conception of all the requirements which a reliable determination demands, and should make sure that the work is properly carried on. He should have taken the trouble to study first of all, the Normal Standards, and should know that

"there is no inflexible standard for normal metabolism for any given age, weight, height, and sex, from which all normal individuals never vary."¹ With this fundamental knowledge the true clinician who is attracted to the application of metabolimetry in pathology will find in it a very promising field, but one which offers no "short cuts" to success.²

Only a brief exposé of the method of use of the apparatus is offered here, because a complete discussion of all the principles involved in the use of this type of apparatus is to be found in the references to the literature given in this series of papers.

The subject has been instructed to omit breakfast and has not partaken of any food or drink (except water) for 12 to 15 hours before the test. He should also abstain from smoking on the morning of the test. Briefly instruct the patient, in order to gain his confidence and insure co-operation. Note his height, weight and age; take his temperature once and the pulse and respiration several times during the next half hour, while he is resting comfortably, preferably in the position which is to be maintained from this time on, and until the test is completed.

With the bell up a few inches and a rubber stopper closing the mouthpiece, test for tightness by placing some weight (about 200 gms.) on the bell. The pointer against the millimeter scale must remain stationary during a minute or more. Remove weight and rubber stopper.

Expel the air completely from the bell and refill, not quite to full capacity, with pure oxygen. If properly balanced the bell will remain in position long enough to give time to connect. (If this cannot be done immediately after filling the bell, close the mouthpiece again with the rubber stopper until ready to proceed.) Insert the rubber mouthpiece. It is often preferable to let the subject do this himself. The simplest way to instruct the patient is for the operator to place one in his own mouth, showing how easy it is first to slip in one side of the mouthpiece, then the rest, with the two lugs between the teeth, the oval flange in front of the teeth and behind the lips which, as a final act, are drawn together around the tubular stem.

Now apply the nose clip and ask the patient to make a slight effort to blow air through the nose, while the operator listens for a possible leak through the nostrils.

Strange as it may seem, there are individuals who actually have to be shown that they can breathe through the mouth. With such proceed as follows: Let them first blow through the mouth while they themselves pinch the nostrils. Repeat with a rubber mouthpiece in the mouth, but not yet attached to the apparatus. Next apply the nose clip. By this time there will probably be no difficulty in proceeding as usual.

"Breathe easily," "Take it easy," "Relax," "Forget your breathing," or some similar simple

admonition is occasionally and, at this time especially, advisable with the uninitiated.

Wait one or two minutes before taking the first reading to allow a degree of relative uniformity of conditions to be established not only in the apparatus but also in the subject.

Now watch the pointer which moves with inspiration and expiration against the millimeter scale. Take mentally, successive readings at the end of each of a series of down strokes which mark the end of expirations. Note the position of the pointer at the end of what you judge to be an average expiration and instantly start a stop-watch, or note the time on an ordinary watch according to a simple method advised by Benedict.³ To minimize the inaccuracies which will often occur in taking readings by this method, two, or better still, three readings (A, B, C,) should be taken and timed successively. If stop-watches are used three are required and should be labeled A, B, C. They are started successively the moment the corresponding reading is taken.

This done, record immediately the temperature indicated by the thermometer on the spirometer bell, and a few minutes later note the barometric pressure.

It is advisable to have an assistant to check all the readings of the operator and to record the pulse and respiration rates several times during the test, while also keeping watch of the subject.

About 10 minutes are allowed for a test. At the end of the test, note again the spirometer temperature. Do this immediately before or after taking a second set of spirometer readings, as at the start, and at the moment the stop-watches are successively stopped.

Next, make a record of the time registered by each stop-watch for the corresponding periods A, B, and C. Thus, each test consists of one composite period which is the average of the results based on the readings taken for each of the three individual periods A, B, and C, which are calculated separately. The one barometric reading and the average of the two temperature readings serve for all three periods in the calculation.

One or two other tests, of two or three periods each, can follow as desired. In this case it is usually advisable to remove both the nose clip and mouthpiece and let the subject enjoy the change while the spirometer is refilled with oxygen before proceeding with the next test.

With trained subjects, if they so prefer, the spirometer can be replenished and the test repeated without disconnecting.

Meanwhile the next patient to be examined goes through the usual preliminaries and is resting on a comfortable bed or couch, or better yet, in a wheel chair which can be wheeled into place by the apparatus without disturbing the patient. This saves time.

The outfit should include an extra mouthpiece assembly and rubber mouthpiece. *Between patients these parts can be changed without delay, and the apparatus "ventilated" by raising and lowering the bell several times.*

After use the metal mouthpiece assembly is thoroughly scrubbed with strong soap, and sterilized. Treat the rubber mouthpiece similarly, though it will not stand long boiling. Do not use any disinfectant likely to give an odor or taste to the rubber. The large rubber tubes can be treated in the same manner whenever it is thought necessary, chiefly for the sake of cleanliness, as the possibility of the transmission of infection from one subject to the next has been shown to be very remote when ordinary precautions are taken.*

With the metabolic rate found, the report should also include the average pulse and respiration rate. Other observations having any bearing on the degree of success with which the determination was made are also noted on a blank printed for this purpose which suggests the items to be systematically recorded.

No hard and fast rules can be laid down with regard to the number and frequency of observations advisable in any given clinical case. No matter what the case investigated is, no definite conclusions should be drawn on the result of one test only, nor of two or three consecutive tests made the same day. The ideal method, for research work at least, is that advocated by Benedict which calls for, in any given day's observation, three successive composite periods, the first of which may be discarded in the calculations, the results for the day being the average of periods two and three.

In clinical work it will often be necessary to deviate from this method because many patients cannot give a continued coöperation and remain quiet and relaxed long enough. The rule enforced in the Metabolism Laboratory of the Battle Creek Sanitarium is not to issue the initial report of a case, except when urgent, until the results obtained have been confirmed by at least two tests taken as a rule on two or three successive days. The report is based on the average results of two successful tests which do not vary over ten or fifteen per cent. of each other.

The method of calculation is presented in a subsequent paper.

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Current Literature Department.

ABSTRACTORS.

GERARDO M. BALZONI	CHARLES H. LAWRENCE
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PRIMARY CARCINOMA OF THE URETER. REVIEW OF THE LITERATURE AND REPORT OF A CASE.

JUDD, EDWARD S., and STRUTHERS, JOHN E. (*Journal of Urology*, August, 1921). The first case, reported in 1878, was discovered at necropsy. Albarran, in 1890, probably was the first to diagnose a case correctly before operation or necropsy. His diagnosis was confirmed at operation. He reported this case in 1899, another in 1902. In the 25 cases reported in the literature, calculi were given as the probable cause in six. The incident of ages is between 40 and 60. Zironi considers leukoplakia as a probable origin of both benign and malignant neoplasms. Hydronephrosis was definitely stated to be present in 40 per cent. of the cases.

The principal symptoms are hematuria, swelling, and pain, the same as with tumor of the kidney.

As regards treatment: When the kidney function has been proved useful, it appears logical to extirpate the tumor and perform a uretero-cystostomy, or if this operation is impossible, anastomose the ureter into the intestines. Marston is enthusiastic over his success in destroying with the electric current, nerves in the ureter in two cases. In diagnosis and treatment the multiplicity in villous tumors is particularly to be feared. [B. D. W.]

A SCIENTIFIC STUDY OF THE NORMAL HUMAN URETER BY FRACTIONAL URETER-PYELOGRAPHY.

GOLDSTEIN, ALBERT E. (*The Journal of Urology*, August, 1921). The calibre of the normal human ureter to be expressed in terms of figures varied between $2\frac{1}{2}$ to $3\frac{1}{2}$ mm. in diameter. The ureter possesses certain normal powers of distention. The normal ureter and pelvis have a certain definite time of expelling their contents, varying between three to seven minutes, with a solution of 13.5 per cent. of sodium iodide. The ureter is best studied by making a ureterogram with the tip of the catheter low in the ureter or entirely out. The possibilities are exceptional in studying the ureter and renal pelvis by fractional or serial uretero-pyelography. [B. D. W.]

THE TRANSPERITONEAL APPROACH TO THE KIDNEY, ITS INDICATIONS AND LIGATIONS.

QUINBY, WILLIAM C. (*The Journal of Urology*, August, 1921). This procedure of ligation of the renal vessels as the primary attack on a kidney subsequently to be removed is important and should certainly be carried out as the first step in the removal of renal tumors. Possibly tuberculosis of the kidney should be similarly attacked. The renal vascular pedicle is easily reached through the retroperitoneum by transabdominal approach. Such ligation may be a substitute for nephrectomy where this operation has become impossible. [B. D. W.]

RADICAL TREATMENT OF CANCER OF THE BLADDER.

SMITH, GILBERT (*Journal of Urology*, August, 1921). The use of radium in cancer of the bladder of a really inoperable type is a therapeutic measure frequently suggested by those unfamiliar with the subject. In twenty-four cases of this type, the application of radium emanation to the interior of the bladder was tried out faithfully at the Huntington Memorial Hospital for Cancer Research. Of these, only three showed definite retrogression of the growth; several showed temporary cessation of hemorrhage and a diminution of cystitis. As a result of this experience, the conclusion is that the only really effective way to apply radium in cancer of the bladder is by the implantation of bare emanation tubes or of needles directly into the base of the growth.

Thus if partial cystectomy or the use of radium does not offer reasonable chances of success, then the urinary stream should be diverted and the bladder opened and treated extensively with radium, or removed entirely.

There are three ways of diversion: (1) lumbar nephrostomy, which is probably the safest method; this needs much after-care for the drainage tubes; (2) Ureterostomy; here the orifices tend to contract and the urine cannot be carried off as conveniently as in the preceding procedure; (3) uretero-enterostomy; if this is done successfully, it is vastly more satisfactory.

Here are three dangers: general peritonitis, ascending infection of the kidneys, cicatricial closure of the ureter.

The author then gives four cases of uretero-enterostomy. The results show that the implantation of ureters within the bony pelvis is a technically difficult procedure. The limited amount of ureter available, and the possibility of kinking the ureter at the point where it issued from the peritoneum, made anastomosis a difficult and uncertain procedure. A much better procedure is to operate upon one ureter at a time; through an incision just above the anterior superior spine, a loop of colon can be drawn out through an incision in the peritoneum and the anastomosis made extraperitoneal. All of these cases were too far advanced even for total cystectomy. So far as the kidney drainage was concerned, they were encouraging.

The author believes that total cystectomy should be done much more frequently than it is done at present; that cancer of the bladder should be treated in as radical a way as we treat cancer in the breast or the stomach. [B. D. W.]

A CASE OF DOUBLE-SIDED DEFORMITY OF THE URETERS.

BRATTSTRÖM, E. (*Acta Chirurgica Scandinavica*, Vol. LIV, fasc. II). A case of reduplication of both ureters is reported, in which the ureters on each side ran parallel, without crossing one another, from kidney to renal pelvis. Each kidney possessed two separate pelves. All four ureters put out strong jets of indigo carmine. The relationship of the ureters was proved by pyelography first, later by operation. [G. G. S.]

CLASSIFICATION AND MECHANISM OF FRACTURES OF THE LEG BONES INVOLVING THE ANKLE.

ASHURST, A. P. C., AND BROMER, R. S. (*Archives of Surgery*, January, 1922). Ashurst and Bromer present an extensive anatomic and surgical study based on three hundred cases from the Episcopal Hospital, Philadelphia. The article occupies 78 pages, is profusely illustrated with drawings and diagrams and x-ray prints to illustrate the classification in the text. The article is not suited for abstract, but is of interest to those dealing especially with fractures. [E. H. R.]

STUDIES IN EXPERIMENTAL TRAUMATIC SHOCK.

CANNON, W. B. (*Archives of Surgery*, Jan., 1922). This author writes a 22-page article dealing in detail with the experimental and clinical side of this question. He believes that there is ample evidence of the toxic factor in wound shock. He describes the initiating factors in shock, the character of injuries associated with wound shock, cites experimental evidence of a toxic origin of secondary wound shock, and gives a technical explanation of traumatic toxemia followed by clinical evidence of traumatic toxemia. The experimental and clinical testimony, most of which was gathered in the last two years of the war, gives quite a new turn to our ideas regarding the nature of shock. The paper is well presented and extremely interesting. [E. H. R.]

FURTHER OBSERVATIONS ON THE LYMPHATIC ORIGIN OF CHOLECYSTITIS, CHOLEDOCHITIS, AND THE ASSOCIATED PANCREATITIS.

GRAHAM, E. A., AND PETERMAN, M. G. (*Archives of Surgery*, January, 1922). These authors present a paper well illustrated with histopathological photographs showing the undoubted relationship between infections entering the body by way of the tonsils, intestines, etc., which substantiate their theories regarding the origin of inflammations of the gall-bladder and common duct and of the pancreas through the lymphatic system of the liver. Clinically, in practically all of these cases there is enlargement and tenderness of the liver preceding or associated with the gall tract inflammation. Extensive animal experimentation was conducted to confirm their theory.

They state that probably in the majority of cases cholecystitis represents the direct extension to the wall of the gall-bladder from a liver already inflamed. This infection is apparently brought to the liver by the portal vein and extends from there undoubtedly by way of the lymphatics of the liver. This explains the often noted association of appendicitis, peptic ulcer, typhoid fever, suppurating hemorrhoids, etc., with gall-bladder disease. [E. H. R.]

NEW MECHANICAL PROBLEMS IN THE BRONCHOSCOPY: EXTRACTION OF FOREIGN BODIES FROM THE LUNG AND OESOPHAGUS.

JACKSON, C. (*Annals of Surgery*, January, 1922). Jackson presents one of his characteristically beautifully illustrated and detailed articles on this subject, in which he is pre-eminently expert. His diagrams of the situations of foreign bodies in the oesophagus and the common errors in failing to locate them are most illuminating. His methods of extracting an open pin, hair pin, or hook which is imbedded in the wall of the bronchus, or the oesophagus, are extremely clever. The article is of especial importance and interest to the surgeon working along these lines. [E. H. R.]

PERSISTENCE OF GASTRIC ULCER AFTER GASTROENTEROSTOMY.

KLEIN, EUGENE (*Annals of Surgery*, Dec., 1921). Klein writes as follows:

Gastroenterostomy performed for the cure of gastric ulcer may be followed by—

- (a) Hemorrhage. In one-half of the cases this probably comes from the unhealed ulcer.
- (b) Perforation of an unhealed ulcer.
- (c) Carcinomatous degeneration of the ulcer.
- (d) Persistent or recurrent gastric symptoms. In some of the cases these symptoms are due to the unhealed ulcer.

Gastric ulcers may develop in the stomach in the presence of a gastroenterostomy. This does not refer to gastro-jejunal ulcers.

A case is reported where the persistence of gastric symptoms was due to an unhealed prepyloric ulcer following a well-performed gastroenterostomy. The symptoms yielded to partial gastrectomy.

If at all possible the surgical treatment of peptic ulcer should include the removal or destruction of the ulcer.

It is unfair to compare mortality statistics of partial gastrectomy and gastroenterostomy, since the former operation can cure severe cases in which the latter is entirely without effect and might just as well not have been done. [E. H. R.]

MALIGNANT NEOPLASIA IN THE GALL-BLADDER.

MAGOUN, J. A. H., JR., AND RENSHAW, K. (*Annals of Surgery*, December, 1921). Magoun and Renshaw write as follows:

Malignancy of the gall-bladder is not an uncommon occurrence.

Carcinoma is the most common type of neoplasia found; sarcoma is exceedingly rare.

Gallstones are complications in a very large number of cases.

Heredity seems to have little influence in the development of malignancy in this organ.

Females and males are afflicted in the ratio of about four to one.

Seventy-five per cent. of cases occur between the ages of fifty and seventy.

In most cases there has been a history of gallstones for some time.

Early cholecystectomy for stones will either prevent the development of malignancy or find the condition in its incipency.

Late operation is of little value except as a diagnostic procedure. [E. H. R.]

HAEMOSTASIS IN SUPRAPUBIC PROSTATECTOMY.

FISCHER, H. (*Annals of Surgery*, Dec., 1921). This author discusses in detail the various methods used by the foremost genito-urinary surgeons in the control of hemorrhage after removal of the prostate, and ends by stating it his belief that the gauze tampon is after all of most effect.

His own method is to pack the cavity left by the prostate with gauze until it is fairly dry, then after removing this first packing insert a second gauze pack to which a silk thread is tied. He then sutures the bladder wall completely over the prostate cavity and the tampon. This prevents leakage of urine on to the tampon, loosening of the tampon from its bed, and onset of later hemorrhage; the bladder is closed to a drainage tube, and a small drain is put in the prevesical space. After three or four days the sutures in the base of the bladder become loosened, and tampon can be withdrawn by pulling on the silk string, drainage tube being removed at the same time.

The author calls this "the lost tampon method," has used it for six years, and has had no postoperative hemorrhage and no untoward symptoms which could be attributed to the method. He believes it prevents infection of the fresh cavity, as well as hemorrhage. [E. H. R.]

SPECIAL POINTS IN THE TECHNIC OF OPERATIONS ON THE THYROID GLAND.

CHILE, G. W., AND LOWER, W. E. (*Annals of Surgery*, Jan., 1922). These authors present a very practical article on this subject. They believe that as a rule too much of the gland is ordinarily left, resulting many times in the recurrence of symptoms. They point out the dangers of turning out the gland with

the finger, especially when it is adherent to the trachea or is situated below the clavicle. Large veins may be often torn, and undue pressure upon the laryngeal nerves results in sudden death. They discuss respiratory obstruction during operation, interference with the mechanism of swallowing, and advise the immediate stopping of the operation if there is any doubt during it as to the immediate outcome. They believe that the delayed closure of the wound often times saves the patient from sudden death, both because the patient can be returned to bed before any injury is done, and also the amount of drainage of toxic material from the wound following delayed closure is often of great value. They advise against x-ray treatment because of the following disadvantages:

(a) The dose required to produce a given effect is at best a guess.

(b) Relapses are common.

(c) The delay in unsuccessful cases leads to serious damage to certain organs—myocardium, liver, nervous system, etc.

(d) In case of operation later, the scar tissue and adhesions caused by x-ray are a handicap. The dilemma in the use of the x-ray is myxedema or relapse. If the dose is sufficient to kill all the thyroid cells, myxedema results; if the dose does not kill the cells, they recover and there is relapse. [E. H. R.]

STUDIES IN EXHAUSTION: III. EMOTION.

CHILE, G. W. (*Archives of Surgery*, Jan., 1922). Crile writes as follows:

The emotive response of timorous animals is a commonplace. As a human experience, it is universal. That it may be graded in intensity up to a critical point is acknowledged; that it may be overwhelming and suspend function is commonly observed. In our researches, we used many animals, and found, as Colonel Mott has concluded, that the emotive response is one of the most powerful of which the organism is capable. Emotion causes a more rapid exhaustion than is caused by exertion, or by trauma, excepting extensive mangle of tissue, or by any toxic stimulus except the perforation of viscera. Apparently, in birds, in particular, the emotion of fear may instantly overwhelm the organism, as when a bird is unexpectedly confronted by a snake.

In our experiments, fear caused profound changes in the cells of the brain, the liver, and the suprarenals; in some cases an acidosis developed acutely; in some cases albumin and sugar appeared in the urine; the epinephrin output, as has been demonstrated by Cannon, was increased; the electric conductivity of the brain, the liver, and of other organs was altered.

In short, our researches have shown that the emotions drive the organism with extreme intensity; that, like trauma or exertion, emotion may drive the organism within the limits of normal response, or so overwhelmingly as to suspend the normal functions and reduce the individual to a state of complete, cold prostration. In other words, emotion may cause exhaustion; it may cause shock. [E. H. R.]

TRANS-ORBITAL PUNCTURE OF THE GASSERIAN GANGLION.

VAN ALLEN, C. M. (*Ann. of Surg.*, November, 1921). This author presents a very thorough and interesting treatise on this interesting subject. He outlines indications for the use of this particular operation and describes the technic of Harris and Hartel. He takes up the anatomy in detail and graphically describes the introduction of the needle from without through the inner canthus of the eye along the orbital wall to the Gasserian ganglion. He uses a Patrick cranial needle 10 cm. in length and 1½ mm. in diameter equipped with a closely fitting stylet.

There are several pages of drawings made from anatomical subjects showing the depth of the ganglion from the inner canthus of the eye and the general direction which the needle should take, also illustrations of five clinical cases on which this technic was successfully carried out. These were largely extensive lesions of the cheek in patients who were unable to take a general anaesthetic and in whom a purely local anaesthetic was not feasible.

The author makes the following statement in conclusion:

"It is evident that whatever injury is inflicted upon the root of the ganglion by the injection of alcohol will be shared to a less extent by neighboring nerves. This is true, no matter by what approach or technic the needle is entered, and transorbital puncture is no exception. Accordingly, until some means shall have been discovered of preventing this widespread diffusion of the alcohol, we cannot at all recommend the puncture in the therapy of trigeminal neuralgia.

"Other possibilities for the employment of the technic suggest themselves. It affords a method of withdrawing cerebrospinal fluid directly from the basilar cistern. Wider experience may justify an attempt to use this route for therapeutic applications to the central nervous system. The effect of air injections in the x-ray diagnosis of intracranial disorders is likewise worthy of investigation.

"But in the meanwhile the results of this work, both anatomical and clinical, lead us to believe that transorbital puncture of the Gasserian ganglion furnishes a relatively simple means of securing block anaesthesia for operations in the territory supplied by the trigemini, fully justified in cases where general anesthesia is contraindicated." [E. H. R.]

STUDY OF METHODS OF PROCEDURE IN RESECTION OF THE OESOPHAGUS.

BIDGOOD, CHARLES Y. (*Ann. of Surg.*, November, 1921) reviews the various methods of forming a new oesophagus as advocated by various European surgeons. He describes particularly the Jiana-Roeppke method of making a tube from the stomach and the method of taking a loop from the Jejunum, and concludes that the most successful method is that in which a skin tube has been made to hold the new oesophageal tube. An adequate bibliography is appended. [E. H. R.]

PEPTIC ULCER, PRIMARY AND SECONDARY.

DEAVER, JOHN B. (*Ann. of Surg.*, November, 1921). Deaver presents a very "meaty" article upon this important subject. Statistics show that this ulcer may occur from a few days to many years after the primary operation. The shortest known interval is ten days, while at the other extreme seven years have been known to have elapsed between the operation and the secondary ulcer formation.

He says that preliminary medical treatment of this type of ulcer is what he would term "medical pussy-footing"; in other words, it is courting disaster in the shape of hemorrhage, perforation, and, in certain cases, of carcinoma. It is after the original treatment of peptic ulcer either by gastroenterostomy alone or combined with the excision of the ulcer or by pylorotomy, partial gastrectomy, or sub-total gastrectomy, that medical treatment has its greatest value.

It takes three weeks or more for the margin of the gastroenterostomy to heal. In order, therefore, to obtain the best results from surgery, it is of the utmost importance to institute judicious medical treatment mainly in the form of alkalies immediately after operation, and to continue it for at least a month. The administration of alkalies after a posterior gastroenterostomy is adopting nature's manner of neutralizing the acid gastric juice through the medium

of the bile and the pancreatic secretion, which relieves the stomach by the way of the new stoma.

The author emphasizes his belief that the appendix is the most common source of the infection which produces secondary gastric ulcer. It is not out of place to try a course of medical treatment before subjecting the patient to operation for secondary marginal ulcer, but surgery is in the majority of cases the only method of obtaining permanent relief. [E. H. R.]

A TECHNIC FOR LEG AMPUTATION.

ORR, THOMAS G. (*Ann. of Surg.*, November, 1921). Orr presents a very rational and seemingly more than usually adequate method of amputation of the lower extremity.

He makes a long anterior and a short posterior flap in order that the scar may be placed in a posterior position both to free it from possible attachment to the bone or from pressure by the artificial limb. The deep fascia is dissected from the posterior flap in such a way that it may later be drawn up over the end of the muscles and stump in order to give a better bearing surface. The muscles are gathered over the ends of the bone with a purse-string suture, the edge of the tibia is beveled off anteriorly so that there shall be no sharp projecting edge. The nerves are carefully freed and injected with absolute alcohol and are cut short. The anterior flap of fascia is then tacked down over the posterior flap, making an adequate buffer. A small drain is inserted laterally.

The method is well illustrated by excellent drawings. [E. H. R.]

PYLOROSPASM IN ADULTS: ITS MEDICAL AND SURGICAL TREATMENT.

J. M. T. FINNEY AND JULIUS FRIEDENWALD. (*Am. Jour. Med. Sci.*, October, 1921, cxlii, No. 4).

Pylorospasm may exist in various types: the neurotic, the irritative, and the reflex. The authors find, however, that as a pure neurosis, pylorospasm is rather uncommon, and that, in a large percentage of cases, pylorospasm is secondary to some irritation in the stomach itself or appears as the result of disease of some other organ. It is quite commonly observed secondary to some gastric or abdominal affection, as in gastric or duodenal ulcer, cancer of the pylorus, enteritis, gall-bladder disease, appendicitis, renal disorders and diseases of the genito-urinary organs.—(Therefore the diagnosis of "gastric neurosis" is permissible only after exclusion of all intra-abdominal pathology.)

The symptoms vary in intensity according to the degree of spasm. They may vary from simple sense of discomfort in the epigastrium, usually accompanied by acid eructations or regurgitation, to severe pain and vomiting. Characteristically, the symptoms appear from two to three hours after meals, and are relieved by vomiting.

Examination during the attack shows tenderness in the epigastrium, and a tumor, due to gastric contraction, may be felt in thin patients. Hyperchlorhydria can usually be demonstrated. The greatest aid, however, is afforded by roentgenology, a combination of fluoroscopic observation and roentgenograms affording the best evidence. Such a study not only determines the presence of spasm, but also shows whether it be due to organic disease or is of purely nervous origin.

Treatment consists first in overcoming or eliminating the primary disorder before attacking the spasm. (Often this is the only treatment needed). If of purely nervous origin, change of scene or a rest cure may be advisable. All irritating food should be excluded from the diet. For the pain, atropin, in full doses, hypodermically, is the most useful drug. Adrenalin, advised by Stockton and Rogers, has been successful in some cases.

In those intractable forms which have resisted all medical treatment, pyloroplasty has furnished satisfactory relief. The writers believe "that pain of every character in the upper abdomen should be carefully studied clinically, so that if operation be undertaken for any cause and no explanatory lesion be observed, the advisability of performing a pyloroplasty may be considered,—provided, of course, that definite evidence of pylorospasm has been previously noted. This fact is of the utmost importance, in as much as the spasm is extremely liable to relax under anaesthesia, and the actual condition may, therefore, be entirely overlooked in the course of operation."

[C. H. L.]

SOME EXPERIENCES WITH THE MELTZER-LYON METHOD OF DRAINING THE BILIARY SYSTEM.

BASSLER, LUCKETT, AND LUTZ. (*Am. Jour. Med. Sci.*, November, 1921, clix, No. 5).

This paper is based on clinical cases and operation observations, as the writers feel that evidence thus obtained, is more accurate and worth while than that afforded by animal experimentation, as regards the particular questions which they wish to answer.

Acting upon Meltzer's "law of contrary innervation," Lyon adopted the use of the duodenal tube and instillation of 25% solution of magnesium sulphate into the duodenum as a diagnostic test for diseases of the gall-bladder, and as a means of treating biliary conditions. He divides the bile obtained into "A," "B," and "C" bile, and makes certain deductions from the amount and character of each kind obtained.

The writers found, by direct observations on six patients during operation, that introduction of a 25% magnesium sulphate solution into the duodenum caused no contraction or change in tension of the gall-bladder. In two cases bile-stained fluid escaped from the outer end of the tube before anaesthesia was commenced, but at operation the tube was found not in the duodenum but in the stomach. They do not agree with Lyon's deductions from the color, specific gravity and other characteristics of aspirated bile, and advance careful evidence in support of their criticism. As a result of their observations, their most important conclusions are:

That Meltzer's "law of contrary innervation" is not proved, and this throws into doubt any specific effect of relaxation of the sphincter *odii* and contraction of the gall-bladder induced by a magnesium sulphate solution.

That the margin of error in deducting from the presence of mucopurulent flakes, pus cells, inflammatory debris, bacteria and cells in the aspirated bile as positively coming from the gall-bladder is too great for clinical deduction.

That it is erroneous to deduce clinically in both amount of biles obtained in any gradation (A, B, C, and D), or by specific gravity estimations as to whether bile stasis exists or not.

That when true pathology exists, the method is a poor substitute for proper surgery. [C. H. L.]

DOES METASTATIC GOITRE EXIST?

BEVARD AND DUNET (*Revue de Chirurgie*, lix, 1921) have reviewed 44 cases in which the claim had been made that a benign goitre could give rise to metastases and have come to the following conclusions:

(1) The above erroneous notion was first introduced into thyroid pathology by Cohnheim, who described a thyroid tumor as benign which Wölfler declared to be malignant.

(2) This notion has persisted because of many reports of metastases in the cases of so-called benign goitres, although in a great majority of instances there was no microscopical examination of the goitre itself or the examination was very incomplete.

(3) The so-called metastatic goitre is, in reality, a neoplastic one, and the thyroid gland must be ruled by the general laws which govern the evolution of tumors: only thyroid neoplasms give rise to metastases.

(4) In the presence of a metastatic tumor, usually found in bone, which has been shown microscopically to be of a thyroid nature, the gland itself should at once be examined for any pathological changes. Macroscopically the thyroid may be enlarged or may show a small nodule clinically benign.

(5) If a secondary tumor has been discovered, the absence of clinical signs of malignancy in the thyroid does not justify the conclusion that the goitre is benign.

(6) The sole means of deciding the question is by histological examination, and that made in serial sections and of the whole lesion. [W. M. S.]

BENIGN TUMORS OF THE STOMACH.

EUSTERMAN, G. B., AND SENTY, E. G. (*Surgery, Gynecology and Obstetrics*, Jan., 1922). These authors write as follows:

1. Benign tumors of the stomach are rare and constitute only 1.3 per cent of all gastric tumors that have come to operation. The actual proportion of benign new-growths to malignant new-growths or ulcerations is as 1 is to 200.

2. Myomata and fibromata constitute the largest group, gastric polyposis the most infrequent.

3. About 50 per cent of benign tumors are found in patients more than 40. There is no characteristic syndrome and gastric chemism ranges from achylia to hyperacidity with hypersecretion. The summation of evidence favors the diagnosis of gastric cancer.

4. The majority of the tumors are situated in the region of the pylorus, the greater curvature, anterior and posterior walls.

5. The smaller tumors are practically symptomless unless situated at the orifices or unless multiple.

6. Common complications are recurring hemorrhage, which occurred in 37 per cent., and pyloric obstruction which occurred in 25 per cent. Palpable mass, food retention, or 6-hour barium retention is less frequent than in gastric cancer.

7. Often patients with benign gastric tumors are refused operation because the condition is regarded as malignant and inoperable. The true nature of the lesion is discovered only when the patients insist on operation.

8. The surgical end-results are excellent. [E. H. R.]

A CONSIDERATION OF THE RELATIVE MERITS OF RESECTION AND GASTRO-ENTEROSTOMY IN THE TREATMENT OF GASTRIC AND DUODENAL ULCER.

DEQUERVAIN, F. (*Surgery, Gynecology and Obstetrics*, Jan., 1922). DeQuervain writes as follows:

1. That 90 per cent. of ulcer recurrences, peptic ulcer, and other disturbances, occur in the first 4 years after operation, so that statistics which depend on results reported earlier than 4 years after operation are apt to show too favorable results. Observations made in the first 4 years after operation do not contain all the possible sequelae, and therefore later observations must be made in order to secure the final results.

2. That simple gastro-enterostomy produces in all forms of gastric ulcer about the same early results—somewhat more than four-fifths cure or improvement approximating cure.

3. That observations made over longer periods and including all cases show for gastroenterostomy for all types of gastric ulcer, a cure or improvement in 75 per cent of cases. In ulcers at a distance from the

pylorus the average results are no less favorable than in those at the pylorus.

4. That the radical methods, irrespective of interval, show results similar to those in gastro-enterostomy at early periods, with a cure in about 80 per cent.

In these facts there lies a satisfactory reason for employing resection even though it involves somewhat greater operative risk. At this point we would state that this is true only when we do not hold ourselves to a fixed rule but rather are governed by the conditions which confront us. Among such conditions may be mentioned the location of the ulcer and the resistance of the patient; also the conditions under which the operation is to be carried out, for there are conditions independent of the patient under which it is better that the surgeon does not resect, even if resection can be done. We include here among other things technical experience and the type of assistants present. It is pleasant to be able to determine by statistics that one can with a good conscience decide not to resect if these external conditions are not satisfactory. Regardless of the type of ulcer, one can do the patient a greater service by performing a good gastro-enterostomy than by doing a resection under unfavorable circumstances. [E. H. R.]

OBSTETRICAL PARALYSIS OF THE PERONEAL NERVE.

WHITMAN, A. (*Surgery, Gynecology and Obstetrics*, Jan. 1922). Whitman writes as follows:

1. In any paralysis below the knee occurring after prolonged, difficult labor or instrumental deliveries, the possibility of intrapelvic injury to the sciatic nerve should be borne in mind.

2. An immediate orthopedic and neurological examination should be made, with a view, if possible, to establishing the differential diagnosis.

3. Apparatus should be immediately applied, to prevent deformity, and to enable the patient to get about with the maximum facility.

4. The prognosis as to ultimate recovery should be exceedingly guarded. [E. H. R.]

ESSENTIAL HAEMATURIA.

LEVY, C. S. (*Surgery, Gynecology and Obstetrics*, January, 1922). Levy writes as follows:

1. The diagnosis of essential haematuria should be made only when all known urological methods have been employed with negative findings. It is a purely clinical diagnosis, indicating renal bleeding of unknown etiology.

2. This paper comprises the studies of thirty cases diagnosed as essential haematuria, based on clinical studies supplemented by conclusions drawn from a questionnaire, the questions of which were so framed as to include the possibility of subsequent development of nephritis, urinary tuberculosis, calculi of urinary tract, renal tumor, operative procedure upon the kidney involved, and recurrences of haematuria.

3. In 36 per cent. of the cases the onset of the haematuria occurred in the fourth decade of life.

4. The bleeding in essential haematuria is for the most part symptomless.

5. In most of the cases the haematuria developed spontaneously. Exertion does not appear to play a significant role in the origin of these haematurias.

6. The right kidney was responsible for the bleeding in 17 cases and the left in 13 cases. In no case were both kidneys involved.

7. The results of operative procedures have not been better than those of non-operative methods. In our series there were recurrences after decapsulation and two nephrotomies. Nephrectomy is the only operation ever indicated, and that only as an emergency measure to save a patient from bleeding to death, and

not as a routine measure for intermittent haematuria over a long period.

8. The non-operative methods have been used with success. These have consisted of intrapelvic injection of silver nitrate and adrenalin, and of the passage of a ureteral catheter; the oral administration of calcium lactate and the subcutaneous or intramuscular injection of horse-serum. Of these the intrapelvic methods have given the best results, and it is of interest to note that in a large number of the cases of the series the urine had become clear within a week or ten days after this form of treatment.

9. It is suggested that the pelvis of the kidney be completely distended with fluid whenever intrapelvic injections are employed. That distention is an important factor in this therapy is shown in many cases in which this haematuria has temporarily disappeared after the injection of an opaque medium for pyelographic studies.

10. The 30 cases have been followed from 1 month to 12½ years. There have been 12 cases with no recurrences of the haematuria, and 18 cases with recurrences. Of the latter there are 2 whose urine is bloody at the time of writing. It is not safe to predict cures.

11. Spontaneous cessation of the bleeding occurs frequently in essential haematuria.

12. The general health is usually not affected by the loss of blood in essential haematuria.

13. From an analysis of the questionnaires, we can easily infer that none of the patients has developed nephritis, renal or ureteral calculus, tuberculosis in any form, or renal tumor, and none has had an operation on the genito-urinary tract.

14. Prognosis in essential haematuria is favorable in spite of the loss of blood and the recurrences of haematuria. [E. H. R.]

CONGENITAL OCCLUSIONS OF THE INTESTINES.

DAVIS, D. L., and POYNTER, C. W. M. (*Surgery, Gynecology and Obstetrics*, January, 1922). These authors write as follows:

Congenital occlusion may occur at any point in the intestinal canal. In 15 per cent. of this series it is multiple.

The condition is relatively rare; it occurs once in about 20,000 infants.

There is no one cause for all of the cases. The various etiological factors may be summarized under the following heads: developmental anomalies; developmental accidents; foetal diseases.

Prognosis is bad.

Treatment should be an entero-anastomosis performed as early as possible. [E. H. R.]

A CLINICAL AND PATHOLOGICAL STUDY OF CONTRACTED BLADDER.

FRONTZ, W. A., in *Journal of Urology*, June, 1921. The essential lesion in the condition variously described as "diffuse ulcer," "localized cystitis," "interstitial cystitis," "panmural cystitis," etc., is a submucous fibrosis. In most cases other evidences of inflammatory change are noted in the different layers of a bladder wall, but these differ in no respect from the average case of chronic diffuse cystitis.

The cardinal symptoms of the condition are urinary frequency and pain, referred chiefly to the suprapubic region and resulting from over-distention of the bladder.

The diagnosis is based upon the history, the finding of a diminished bladder capacity, with urine not infrequently sterile, the production of intense suprapubic pain when an attempt is made to introduce fluid beyond its capacity, and cystoscopic findings often comparatively slight and out of all proportion to the clinical picture presented. In cases having sterile urine, cystoscopy may reveal insignificant and trivial

areas of reddening of the mucosa at one or more points; in other cases slight puckering is noted, while in cases having infected urine, superficial ulceration may be present. The occurrence of bleeding at the site of the lesion, following over-distention, is strongly suggestive of the condition, but the production of linear or irregular tears in the mucosa by this procedure is almost pathognomonic of it. The bladder capacity, when the patient is deeply anesthetized, approaches normal, a point of differentiation between the cases in which the lesion is more or less localized and those cases in which practically the entire bladder is involved. In the latter group the bladder is inelastic, and the capacity under anesthesia shows very little increase over that when the patient is awake.

Hydraulic distention of the bladder, local application of various drugs, high frequency, etc., have in our experience been unproductive of permanent results in this group of cases.

When the lesion occupies a portion of the bladder permitting resection, this procedure should be employed. In those cases in which resection is not feasible, deep cauterization should be practiced.

[B. D. W.]

COMBINED TUMORS OF THE KIDNEY.

GRAVES, R. C., and TEMPLETON, E. R., in *Journal of Urology*, June, 1921. Combined renal tumors are rare. Hitherto only four such cases have been found in the literature. They were presented by Frank B. Berry in the *Journal of Medical Research*, 1919.

This paper presents two cases of combined renal tumors. The first case showed hypernephroma (lower pole) and papillary carcinoma of the renal pelvis (upper pole). The second case showed papilloma of the renal pelvis and papillary cystadenoma of the lower pole.

Total haematuria was given as the initial symptom and chief complaint; in the first case of a year's duration; in the other case, haematuria had begun six weeks before admission. The bleeding was intermittent in both cases. Neither patient reported symptoms of bladder irritability.

The first case noticed the occurrence of dull, lumbar pain preceding his period of haematuria. In neither case did the routine physical examination reveal the presence of a tumor. The urine in Case I contained many white blood cells and a few red blood cells, while in Case II only rare red blood corpuscles were found. Pylorography in one showed a "filling defect"; in the other a hydronephrotic dilatation, the shadow of which was faint and ill-defined.

[B. D. W.]

SQUAMOUS CELL CARCINOMA OF THE BLADDER.

HINMAN, FRANK, and GIBSON, THOMAS E. (*Journal of Urology*, July, 1921). Three personal cases of squamous cell carcinoma of the bladder are reported. Radical resection of the cancer has been performed in all. One patient is living and well three years after operation; another ten months and the third three months.

Squamous cell carcinoma of the bladder is a relatively rare disease, only ninety cases (including the author's own cases) having been reported.

The etiology of these neoplasms has been variously ascribed to (1) an ascending epidermization, (2) an ectodermal embryonal inclusion in the vesical wall, (3) a carcinomatous degeneration of pre-existing leukoplakia, and (4) leukoplakia malignant in character from the beginning. It seems that no single theory will explain the etiology of these neoplasms in every case. Definite proof in support of these theories appears to be the result of malignant degeneration of pre-existing leukoplakia.

Leukoplakia is a rare condition characterized as a keratinization of the mucosa of the urinary tract as a

result, in most cases, apparently, of long-continued severe inflammation or irritation.

Leukoplakia is not a metaplasia, but represents, according to the writer's explanation, the effort on the part of epithelium to exercise its inherent power of adaptation to environment in the form of protective cornification, a characteristic, it would seem, of epithelium in general.

"Heterotopic epidermization," so-called, both benign and malignant in nature, has been reported in practically every region of the body where epithelium occurs.

Squamous cell carcinoma appears to be the most malignant form of vesical carcinoma. It is rapidly infiltrating and characterized by early lymphatic involvement.

There are two types of squamous cell carcinoma of the bladder: the tubular type, or non-cornifying epithelioma, and the lobular type (or cornifying epithelioma). The former is said to be the more common type. The latter is generally a malignant ulcer resembling those seen on cutaneous surfaces.

The difference between the two types of neoplasm is apparently one of degree rather than kind. The true cornifying epithelioma is not necessarily heterotopic, as held by Albarran.

Metastases are uncommon, having been reported in only three cases. The cause of death in most cases is attributed to one or more of the following factors: infection, hyronephrosis, and cachexia.

The greatest age incidence is between forty and fifty. Approximately three-fourths of the cases were males.

Symptoms are not characteristic. The most common prodromal symptom is haematuria.

Treatment has been palliative in many cases, and the reports of the operative treatment are too incomplete to determine with certainty the results. Two three-year cures, one five-year cure, and one eight-and-a-half-year cure have been reported after resection.

This paper also presents portions of some fifty cases by other authors by tables and also short summaries.

[B. D. W.]

THE VALUE OF PREPARATION IN KIDNEY OPERATION.

BUGBEE, H. G. (*Journal of Urology*, July, 1921.) Bugbee is convinced that in cases of traumatic injury to the kidney conservative treatment or deferred operation, in carefully selected cases, will often lead to the saving of a kidney; that many cases of tuberculosis of the kidney, even in the presence of active foci in other parts of the body, will become good surgical risks by a careful period of preparation; that such a preparation diminishes the liability of general tuberculosis; and that secondary lesions in the urinary tract will heal more rapidly following operation. Careful preparation in cases of renal calculi often renders pelvo-lithotomy or nephrotomy possible, thus obviating nephrectomy. Operation has been eliminated in many cases of kidney infection, and often even in the pyonephrosis, by ureteral catheter drainage and cutting off the supply of infection to the kidney. The type of cases known as essential haematuria has been practically eliminated by more careful study and by pelvic lavage. Operative procedures in other kidney conditions, as congenital anomalies, polycystic kidney, tumors, and kidney complications of pregnancy, should be so accurately outlined and the patient so prepared for operation that the mortality in kidney surgery should be exceedingly small.

[B. D. W.]

VAGINO-VEsICAL AND UTERO-VEsICAL FISTULAE.

MACKENZIE, DAVID W. (*Journal of Urology*, July, 1921). MacKenzie emphasizes a few points which he considers of vital importance.

Pre-operative cleansing of parts.

Attacking the condition from a urological point of view.

Definite diagnosis with location of openings in the bladder and the relation to the urethral orifices.

Lateral perineal incision, especially for fistulae high in the vagina or uterus.

Free separation of the vaginal from the vesical wall. Multiple layers of suture with invagination of the bladder into that viscus.

Vaginal packing to elevate and support the suture line.

Post-operative judgment and care.

McKenzie presents a dozen cases with drawings from a number of them. It is to be noted that all the cases were operated by the perineal route.

[B. D. W.]

A SUGGESTION FOR THE POST-OPERATIVE CARE OF
VESICO-VAGINAL FISTULAE.

CHUTE, ARTHUR L. (*Journal of Urology*, July, 1921.) Chute presents four cases in this paper which healed solidly after one operation, by having the patient lie on her face with a retention catheter in place. This position, though most irksome, prevents any weight of urine or of intestine from exerting pressure on the line of suture. When the edges of the bladder incision are kept at rest in accurate apposition, as in the case when this position and retention catheter are employed, the edges of the incision very soon adhere fairly firmly, as is very well shown in Case 3, in whom six days after operation the catheter became plugged and the bladder was found to be holding eight ounces of urine without any leakage through the line of suture. This plugging of the catheter emphasized the importance of making sure that the retention catheter is kept clear by syringing a little fluid through it, and it is also a wise precaution four to six days after operation to carefully remove the catheter and cleanse it of any accumulation of phosphates that may have taken place.

A NEW ADVANCE IN SILVER THERAPY.

COBB, RALPH B. (*Journal of Urology*, July, 1921.) The writer's results with colloidal silver chloride Hille, known and prescribed as "Lunosol," or "White Silver Hille," compare more favorably than the results obtained by any other of the generally used preparations.

The new silver salt was found to be more efficient, non-toxic, non-irritating and free from any staining qualities.

Additional work with this new product will be carried out and be reported at a later date. [D. B. W.]

PARAFOCAL PHARMACODYNAMIC ALLERGY.

HECHT, from Pirquet's Pediatric Clinic at Vienna, presents in a continued article (*Wien. Klin. Woch.*, Dec. 1, 1921) a study of skin reactions with relation to specific parafocal changes. He finds that in hyperemic regions of the skin the exudation reaction is diminished, constituting a parafocal weakening of the skin reaction. With regard to the Pirquet skin reaction, intracutaneous and cutaneous tuberculin reactions show parafocally changing relations which may be regarded as specific. The depression of the readiness for exudation around an inflammatory infiltration is demonstrable to a distance of 25 mm. which throws light also on the affinity of so-called local ergotropy. [R. M. G.]

LENGTH OF INTESTINES AND SITTING HEIGHT.

JELLERIGG, from Hamburger's Pediatric Clinic at Graz, presents a study (*Wien. Klin. Woch.*, Dec. 15, 1921) of the relation of intestinal length to sitting

height in children. He finds the average ratio of height to length to be 1:12, with individual variations from 1:8 to 1:16. He therefore concludes that Pirquet is not justified in postulating a constant relation and in determining therefrom the area of the absorbing intestinal surface. [R. M. G.]

SUB-ACUTE BACTERIAL ENDOCARDITIS.

NICHOLL, J. W. McK. (*The Practitioner*, December, 1921) discusses the subject of what he calls sub-acute bacterial endocarditis. The chief symptoms of this condition are fever, pain, breathlessness, and cough. The signs are:

1. Presence of chronic valvular disease of the heart, with signs of failure and changing murmurs.
2. Emboli and their results—
 - (a) Infarcts of abdominal organs.
 - (b) Hemoptysis.
 - (c) Paralysis.
3. Enlarged liver.
4. Albuminuria.
5. Blood in the faeces.
6. Changes in the skin.
7. Clubbing of fingers.
8. Blood-culture.

His conclusions are as follows:

1. Seventeen cases of subacute bacterial endocarditis among war pensioners were observed clinically over long periods. It is a mortal disease, and of greater frequency than has been hitherto believed.
2. The chief diagnostic features are:
 - (a) The presence of chronic valvular disease, especially aortic incompetence.
 - (b) Pyrexia with apyrexial periods.
 - (c) Splenic enlargement.
 - (d) Recurrent emboli and petechiae.
 - (e) Prostration, clubbing of fingers.
3. It may be diagnosed without a positive blood-culture; eight negative results were obtained and only one positive.

[J. B. H.]

SECONDARY ANEMIA OF INFANTS. A STUDY OF SO-CALLED INFANTILE SPLENIC ANEMIA OR ANEMIA INFANTUM PSEUDOLEUKEMICA.

EVANS AND HAPP (*Johns Hopkins Hospital Bulletin*, January, 1922) discuss the so-called infantile splenic anemia with the details and blood findings of numerous cases. Their conclusions are as follows:

1. In infants with anemia, enlargement of the spleen is frequent, and enlargement of the liver and lymph nodes is fairly common. These findings alone are of no specific diagnostic or prognostic importance.
2. The infantile hematopoietic system frequently reacts to anemia with a relative lymphocytosis, by throwing out immature blood cells, or with both of these qualitative changes in varying grades of severity. Any of these reactions may be present with or without a leucocytosis, and may have no serious significance.
3. The presence, absence, or degree of splenomegaly, hepatomegaly, or general enlargement of the lymph nodes, the severity of the anemia, the total white blood cell count, or the type of qualitative changes in the blood, bear no constant relation to each other.

4. This symptom-complex has not been shown to be a disease *sui generis* and all variations of it are probably merely an infantile response to some agent producing secondary anemia. It is not yet entitled to any special name, especially one that suggests a relationship to leukemia.

[J. B. H.]

THE BACTERICIDAL ACTION OF GASTRIC JUICE ON H. TUBERCULOSIS.

INKSTER AND GLOYNE (*British Medical Journal*, December 17, 1921) briefly describe the effect of gastric juice on the tubercle bacillus and reach the following conclusions:

1. Gastric juice removed from the stomachs of persons free from gastro-intestinal disease, at various intervals of time after an oatmeal test meal, showed very little power of destroying (a) tubercle bacilli in sputum which had been exposed to it for ninety minutes, and (b) tubercle bacilli in mouth washes which had been exposed to it for ninety and one hundred and eighty minutes respectively. In one case a total acidity of 62, in another of 54.1, and in a third of 24, failed to destroy the bacillus.

2. The gastric secretion may possibly have destroyed the tubercle bacilli in a very weak emulsion to which it was exposed under similar conditions, but the number of bacilli used (100) was so small that it cannot be considered a fair test, and even the control test with this weak emulsion proved negative in a guinea-pig.

3. The protection against the tubercle bacillus afforded by the gastric secretion is apparently by no means perfect. But it must be remembered that the dilution of contents and the motor activity of the stomach probably play a large part in this mechanism of protection, and these latter factors cannot be satisfactorily experimented upon *in vitro*.

These results are in general agreement with the conclusions arrived at by Allan Macfadyen under different conditions and with bacteria other than *B. tuberculosis* as long ago as 1887.

4. In the four cases examined the untreated gastric juice contained no tubercle bacilli as judged by the inoculation test. We know of no records which show whether or no tubercle bacilli have been found in gastric juice in persons not suffering from clinical tuberculosis. This point may have important bearing on the portals of entry of the bacillus.

[J. B. H.]

CONGENITAL HYPERTROPHIC PYLORIC STENOSIS.

GRAY AND REYNOLDS (*British Medical Journal*, November 26, 1921) present an analysis of 50 operations for congenital hypertrophic pyloric stenosis. Their conclusions are as follows:

1. Accumulating evidence supports Pirie's hypothesis, that hyperadrenalism causes pyloric hypertrophy, which is to be regarded as one of its manifestations.

2. Pancreatic and biliary insufficiency, also resulting from hyperadrenalism, accentuate the pyloric closure and influence the mortality.

3. The sex preponderance is of similar importance.

4. Gas and oxygen anesthesia will nearly eliminate operative fatalities, both immediate and delayed.

5. Operation should never be undertaken as an emergency.

6. Systematic preparation for operation by lavage and infusion is essential. Even moribund cases can be so rendered operable, and make a good recovery.

7. Such preparation should never exceed four days at the outside.

8. Now that the operation mortality has been so greatly reduced by the employment of gas and oxygen, operation is indicated as soon after the diagnosis as the necessary preparatory treatment will permit.

9. The possible risk of performing an avoidable operation is negligible when compared with the prejudicial results of ineffectual prolonged medical treatment.

10. The most careful medical after-treatment is essential.

[J. B. H.]

Book Reviews.

The Clinical Study of the Early Symptoms and Treatment of Circulatory Disease in General Practice. By R. M. WILSON, M.B., CH.B., late Assistant to Sir James Mackenzie; late Cardiologist War Office, Trench Fever Committee; Consulting Physician, Ministry of Pensions. With a Foreword by Sir James Mackenzie. Cloth, illustrated, pp. 245. London: Henry Frowde and Hodder & Stoughton. 1921.

This book presents a study of exhaustion, the pulse rate, extra-systoles, tremor, breathlessness, cyanosis, hyperalgesia, cardiac pain, headache, blood-pressure, the early symptoms of heart failure, etc. The text is freely illustrated by diagrams, many of which are pulse tracings.

In practically all of the above conditions Wilson discerns the working of the vagal and the sympathetic nervous systems, and his book appears to be an exposition of their reciprocal actions. First of all there is the action of a stimulus on one of these systems with its response, and this is followed by a reaction on the part of the other system. Normally there is a high degree of balance between the vagus and the sympathetic; disturbance of this reflex mechanism is believed to be a cause of many of the early symptoms which Wilson has so carefully studied.

The reviewer is instinctively cautious in accepting a theory when it seems to be offered as well-nigh universally applicable by its advocate. And yet as one reads and thinks of the matter the feeling comes that there is a large element of truth in Wilson's theory. The field is too big and the problems too intricate to be settled by one observer, and realizing this, the author hopes to stimulate other workers. Wilson's recorded facts will be useful whether his theories stand or fall.

Much of the discussion concerns the problem of effort syndrome or irritable heart, and all who are particularly concerned with this condition would do well to examine the book. The latter obviously cannot be recommended to the general practitioner as one containing a clear presentation of established facts which may be of service in his daily work, but it may be described as more in the nature of philosophical reading which will stimulate one to think and may assist him who desires to study his cases with the view of increasing the sum of medical knowledge.

The Management of Men. By EDWARD L. MUNSON. Pp. 801. New York: Henry Holt & Co. 1921.

One of the most difficult and complex of human problems, in the military, industrial, social and political fields, is the management of men, and any contribution to this subject, even though it be more or less schematic because of the multiple variations of human character, is a welcome one. Dr. Munson has provided such a volume, and although it is more strictly limited to military problems, yet the extensive data provided can be applied to the conduct of human behavior in the various fields of civil life.

Briefly, the volume deals with the organization and development of morale work in the army to increase efficiency during the war; more broadly, the army material was used as a laboratory for the elucidation and practical application of certain psychological principles in order to increase human efficiency. The book is well written, the subjects discussed in a perfectly scientific manner, while the diversity of material makes the volume unusually complete.

By "morale" the author means a state of mind with reference to confidence, courage and zeal, especially of a number of persons associated in some enterprise. This definition, however, does not fully describe collective morale in what may be defined in Trotter's term, the "herd instinct," which, from the behavioristic standpoint, is really the collective unconscious of society. Morale has many intangible aspects which cannot be reduced to a concrete definition, although for practical purposes it can be felt, described, stimulated, and guided. He points out, however,—and in this we can fully agree with him,—that no administrative method, either military or civil, can be successful which does not take the mental attitude of the human subject into account, that is, the human motives must be understood before social reactions can be guided. These factors of human behavior are, therefore, problems not only of military psychology, of which the mobilization in the Great War furnished a unique opportunity for study, but likewise of the psychology of every-day life which involves vaster numbers of human beings and social contacts and relationships than can be found in the army. Therefore any principles elucidated in what may be called military psychology ought, with certain modifications, to be of value in economic, social, industrial and political problems in times of peace.

The antithesis of morale, what may be called its pathological manifestations, is known by the word "demoralize." Morale is a state of faith quickened or activated by the personality of certain leaders, and therefore numbers of men alone, without adequate morale, can never

insure victory or carry a reform to a successful issue, either in war or peace. In most cases an army loses, a strike disintegrates, a reform movement dissolves, a revolution fails, not because it is physically crushed, but because it is psychologically beaten.

It seems from reading this volume, that positive morale is identical with "transference" of the psychoanalysts, and negative morale, or demoralization, corresponds to the "resistances" of the psychoanalysts. Both are more unconscious mechanisms than conscious rationalizations, and both, when applied to groups, are really that collective unconscious which is termed the herd instinct.

The chief criticism of the book is that there is too much insistence on artificial classification and not enough on the dynamics of human behavior in its unconscious aspects and contacts, and in its motivation from unconscious sources. But considering the complexity of the problem and the difficulties of individualistic psychology, the author has done a very creditable piece of work, although the volume would have been improved if more insistence were placed, not only on the unconscious motives, but also on the more general integrations of human behavior as demonstrated by recent psychological research.

The Blood Supply to the Heart, in Its Anatomical and Clinical Aspects. By LOUIS GROSS. 171 pages; 29 full-page plates and six text-illustrations. New York: Paul B. Hoeber. 1921.

One of the most instructive and stimulating books published in recent years concerning the heart, is this work by Gross, on the blood supply of the heart. It contains excellent illustrations of x-rays of injected specimens and also photographs of injected hearts dehydrated and cleared in oil. There is appended a complete bibliography of 186 authors and 253 papers.

For the anatomist and clinician alike, there is much worth reading in the book. After a discussion of his technique, Gross describes in detail the blood supply of the auricles and ventricles of the average normal heart. A few quotations will serve to bring out points of particular interest: "There can be no sharp line of demarcation between the supply of right and left coronary arteries, since, not only do their branches overlap, but also, as will later be shown, profuse and abundant anastomoses leave a wide border-line which is supplied by both vessels." . . . "The auricular distribution of blood-vessels is so prone to variations that an attempt at giving a typical description becomes artificial and practically worthless . . ." . . . "The right coronary artery in

the typical average heart supplies the entire right ventricle, with the exception of the left third of the anterior wall. Besides this, its *rami ventriculares sinistri* supply the right half of the posterior wall of the left ventricle and a small (posterior) strip of the interventricular septum." The left coronary artery

... "supplies the whole remaining part of the left ventricle, the small left anterior portion of the right ventricle not supplied by the right coronary artery and a small anterior strip of the interventricular septum."

The author, in discussing the blood supply of the neuro-muscular tissue, that is, of the sinoauricular and atrioventricular nodes and of the a-v bundle and its branches, states that usually a definite artery supplies each node. the sinoauricular artery (the *ramus ostii cavae superioris*) arising from the right coronary artery in 60 per cent. of the cases, while the *ramus septi fibrosi*, which supplies the atrioventricular node, arises from the right coronary artery in 92 per cent. of the cases. The right branch of the a-v bundle invariably receives its blood supply from the left coronary artery by a stout vessel called the *ramus limbi dextri*, while the left branch of the bundle has no specific blood supply of its own, profuse anastomoses of septal branches from both sides supplying it. (This distribution probably accounts for the far greater frequency of right bundle branch block than left branch block in the clinic.) Gross states that "the ultimate arborizations (of the A-V conduction system) are supplied from the rich sub-endocardial vessels." He says that in spite of extensive infarction of the heart, "the very rich and profuse sub-endocardial anastomoses generally supply sufficient nourishment to the superimposed Purkinje fibers to keep them intact." (This is a point of especial interest since it supports the view that partial bundle branch block is far more likely than the so-called arborization block in the reproduction of electrocardiograms indicating partial intraventricular block.)

A special chapter is devoted to the blood supply to the valves of the heart. Deductions from the study of this supply applied to valvular inflammation are of much interest. The incidence of valvular endocarditis, probably resulting from an embolizing bacteriemia, seems to bear a close relation to the frequency with which blood-vessels are found in the valves. In support of this theory are the following facts, "Fetal valves contain musculature on right and left sides, the right probably being richer in blood-vessels. Fetal valvular endocarditis is found more frequently on the right side. Regression of musculature and blood-vessels occurs as age advances, but infants' valves still frequently contain both. Infants are fre-

quently attacked by valvular endocarditis. In adults, valvular endocarditis is not as frequent as in children, but occurs with preference on the aortic cusp of the mitral valve. The aortic cusp of the mitral valve is the last to show regression of musculature and the most frequently injected leaf."

In the sixth chapter there is a very important discussion of the anastomoses between the coronary arteries. Back in 1708, Thebesius had said that they existed, as the result of observations he had made during his dissections. In 1855, Hyrtl, and in 1866, Henle, claimed that the coronary arteries were "end arteries." The error of these men and the correctness of Thebesius' observations have of late been proven, and Gross makes the proof very clear. He has come to "the general conclusion that the heart is, perhaps, the richest organ in the body as regards capillary and precapillary anastomoses, between branches of the same coronary artery as well as between branches from both coronaries." He states, however, that "Amenomiya concluded from his study of infarcts occurring in papillary muscles that for an infarct to occur it is necessary to have: (a) too little anastomoses; (b) closure of relatively large vessels, and (c) rapid blockage of the vessel."

In the seventh chapter, Gross describes the veins of the heart, taking up in detail the Thebesian veins, and finally, in the eighth (last) chapter, he discusses the age period changes in the blood supply of the heart. He shows that with age anastomoses increase, particularly as the result of the deposition of fat with rich blood supply. This seems to be something of a compensatory mechanism to assure the myocardium of sufficient blood supply when some of the vessels begin to be narrowed and blocked by sclerotic processes. He cites the case of a woman of 73 years of age, who died of cancer of the gall-bladder. She had never had any cardiac symptoms or signs. At post-mortem examination, she showed almost complete obliteration of the right coronary artery with *absolutely intact myocardium* (italics mine).

To anyone interested in the heart, this book can be warmly recommended. In fact, it should be read by every anatomist and internist.

The Stomach and the Abdomen, from the Physician's Standpoint. By WILLIAM RUSSELL, M.D., LL.D., Ex-President Royal College of Physicians, Edinburgh; Professor-Emeritus of Clinical Medicine, Edinburgh University; Consulting Physician, Royal Infirmary, Edinburgh; Author of "Arterial Sclerosis, Hy-

pertonus, and Blood Pressure," and "The Sphygmometer: Its Value in Practical Medicine." New York: William Wood and Company. 1921.

In submitting this work to the medical profession some words of explanation seem to be necessary. The book is offered as a contribution towards the elucidation of the disorders and diseases of the stomach and other abdominal viscera, as these have to be dealt with by the family practitioner, and by the hospital and consulting physician.

The writer was interested in these matters before the advent of abdominal surgery, but the opening of that epoch gave a motive and an impetus to abdominal diagnosis which had previously been lacking. That diagnosis could be tested on the operating table, instead of the post-mortem room table only, gave a significance to abdominal diagnosis which had been largely wanting.

As a teacher in a great medical school, and as a physician to a great general hospital, where every type of disorder and disease was admitted into the wards, it was a duty and a privilege, not only to treat sick people, but to expound to students the methods and the steps by which diagnosis was reached, and on which treatment was based. The advent of abdominal surgery opened up a new field for investigation, and for teaching internal diagnosis, of which the writer took as full advantage as circumstances allowed.

As time passed, and experience was tested and retested, the problems became simpler and the points essential to correct diagnosis clearer. This led to simplification in teaching, and this book represents more or less fully the position reached. There is little in it which has not been taught and re-taught by the writer as abdominal cases were admitted to his wards. Bits of clinical lectures and bits of clinics, which were written from time to time as new light arose, have been incorporated, and hence a certain amount of repetition has been inevitable.

The records of cases by which the text is illustrated have been deliberately restricted in number. Those which have been used are sometimes of recent date, at other times of earlier date; they are used to illustrate the points which determined diagnosis—a diagnosis which in many of the cases was checked in the operating room.

It is the hope of the writer that the book may be found helpful in simplifying the problems of abdominal diagnosis.

Contents.

Sec. I—The Stomach.

Sec. II—The Pylorus and Duodenum.

Sec. III—The Intestinal Tract.

Sec. IV—The Oesophagus.

Sec. V—The Liver.

Sec. VI—The Spleen.

Sec. VII—The Kidney.

A volume of 300 pages; good paper and print; a convenient size.

A really admirable book,—short, concise, clear, systematic; in agreement with best modern thought and practice. Not extreme in either direction. An almost ideal textbook for students and busy practitioners, though the reviewer does not necessarily agree in every particular detail with the method of diagnosis, and the treatment outlined. Would we had many such volumes, and from American medical men!

Bowel Diseases in the Tropics. By SIR LEONARD ROGERS, M.D., F.R.C.P., F.R.C.S., I.M.S. (retired). London: Henry Frowde and Hodder & Stoughton. 1921.

This volume, published in London in 1921, is based on earlier works by the same author on cholera and dysentery, plus accumulated experience and information about advances in the subjects dealt with. There are chapters on cholera, on several forms of dysentery, and on hill diarrhoea and sprue.

The information is concisely presented, well arranged, and up to date.

The book should prove valuable to students of tropical medicine and to practitioners as well.

The 46th Annual Report of the Lawrence General Hospital.

The 46th Annual Report of the Lawrence General Hospital for the year ending August 31, 1921, must give satisfaction to those interested in the Hospital. During the year it was placed on the first accredited list of hospitals approved by the American College of Surgery. During the year, 2,552 patients were cared for. There were 166 deaths; of these, 55 were moribund when admitted.

GERMAN ATTITUDE TOWARD AMERICAN LITERATURE.

SCIENTIFIC research in the United States has made such notable advances in recent years that the Editor of the *Munchener Medizinische Wochenschrift* has advanced the argument that English should be made compulsory in the curricula of the German schools; also because American literature is taking the lead in medicine, a knowledge of English is becoming indispensable for the research worker.

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SHALL NURSES BE PROSECUTED FOR PRACTISING MEDICINE?

CONSIDERABLE interest has been aroused concerning the problem presented by nurses who have been treating injuries without having secured attendance by physicians. This matter has been frequently referred to by physicians who have felt that nurses have assumed responsibilities not warranted under our laws, and in some instances doctors have felt that the activities of nurses have in a very definite way invaded the field of medical practice, although the nurses have been sufficiently warned. Since the alleged practice of medicine by nurses has seemed to be on the increase, there has been no reason why the authorities should decline to act. The Board of Registration in Medicine has tried to bring about compliance with the law without resorting to drastic measures, but reports of questionable methods have become so common and demands for action have been so insistent that it became necessary to report the facts in two recent cases to the prosecuting authorities.

Previous to the cases referred to, complaints were dealt with diplomatically, for it seemed probable that in most instances there had been no defiance of law and no harm had been done beyond displacing the doctor, and because the patient suffered no injury, nurses and patients have felt that no serious question was involved.

But laws are enacted to be obeyed and until repealed should be upheld by all loyal citizens. Very few would agree that a bank official, who made an investment contrary to law, even though no financial loss resulted, should not be reprimanded by the bank examiner, and if the irregularity was continued most people would uphold the authorities who felt obliged to take action which would prevent repetition. Preventive measures should be employed before definite injury is done.

The whole question is complicated and delicate, but it can be solved by the nurses themselves, even though managers of industrial plants and some physicians try to induce nurses to practise medicine, either as a convenience or to save expense.

The general purpose of the laws governing medical practice is to protect the patient from incompetent service, and nurses should observe the requirements because it is a law and also because sooner or later some nurse may attempt to render a service which is beyond her ability.

TWO VETO MESSAGES.

THE question of taxation of States by the Federal Government for the purpose of furnishing aid to the States, is not new, and precedent for adverse action is found in the veto message of James Madison in 1817, and that of Grover Cleveland in 1887.

When the bill entitled:

"An act to set apart and pledge certain funds for internal improvements," and which sets apart and pledges funds "for constructing roads and canals, and improving the navigation of watercourses, in order to facilitate, promote, and give security to internal commerce among the several States, and to render more easy and less expensive the means and provisions for the common defense," came before Madison, he said in the document which recorded his disapproval of the bill:

"The legislative powers tested in Congress are specified and enumerated in the eighth section of the first article of the Constitution, and it does not appear that the power proposed to be exercised by the bill is among the enumerated powers, or that it falls by any just interpretation within the power to make laws necessary and proper for carrying into execution those or other powers vested by the Constitution in the Government of the United States."

When the bill under the title of: "An act to enable the Commissioner of Agriculture to make a special distribution of seeds in the drought-stricken counties of Texas, and making an appropriation therefor," came before

Cleveland, among his objections he wrote the following:

"I can find no warrant for such an appropriation in the Constitution; and I do not believe that the power and duty of the General Government ought to be extended to the relief of individual suffering which is in no manner properly related to the public service or benefit. A prevalent tendency to disregard the limited mission of this power and duty should, I think, be steadfastly resisted, to the end that the lesson should be constantly enforced that though the people support the Government, the Government should not support the people."

Although laws have been enacted about which there have been questions of constitutionality, the interpretation of the Supreme Court has not always been sought, and such laws have been enforced because no appeal has been taken.

Our legislature has taken the commendable course in asking for the opinion of the Attorney-General relating to the Sheppard-Towner bill, which opinion would be valuable although not authoritative.

THE REASON FOR THE ENACTMENT OF SOME LAWS.

DURING the time devoted to the consideration of the Sheppard-Towner bill, Mr. Thomas U. Sisson, Congressman, made the following remarks on the floor of the House:

"Mr. Chairman and Gentlemen of the Committee, most Members of Congress are physically courageous men. They are not physical cowards. If you were to say to the average Member of Congress that he is a liar or that he is a thief, he would strike you. I wish to God that all of the Members were as courageous politically as they are physically. Then the people would have more respect for this magnificent body of men. Men who would not hesitate for one moment to charge a booming battery will run like a Molly Cottontail from a political issue. Mr. Chairman, I have had my political grave dug for me many times since I have been in Congress on account of certain votes that I have cast. Some one interested in some measure will tell you if you do not vote for it you will be defeated. But I tell you that if a man who casts an honest, conscientious vote and feels away down in his heart that he is right, goes back and looks the people of his district squarely in the eye and says to them that he could not vote otherwise without stultifying his manhood and his intellectual integrity, he will always receive a favorable response from the people, because the American people love a brave, honest man. (Applause.) I expect this bill to pass by a large majority

because the vote will be recorded. If the vote could be by secret ballot and Members voted their real sentiments there would not be as many votes for this bill as there will be against it. I doubt if there will be fifty of us who will vote against the bill as it is; but if the vote could be in secret there would not be fifty votes for it."

It would not be polite, or even proper, for citizens outside of Congress to make charges of this character. Mr. Sisson is on the inside and may be regarded as one familiar with the psychology of a congressman's reaction to outside pressure. One member of Congress, formerly in the Massachusetts State Legislature, severely criticized his colleagues in a public address.

We sometimes wonder why our State Legislature does not follow the advice of physicians on matters concerning which our ablest men are agreed. We hope that the explanation is not to be found in the political cowardice of our senators and representatives. It is more probable that even when the conditions indicate that the best interests of the people would be served by the enactment of certain measures the legislator justifies his adverse vote on the assumption that the majority of the people do not want the proposed legislation. In other words, legislators are apt to feel that they must reflect the wishes of the people rather than assume leadership. Now that physicians are showing more interest in legislative matters, there is less excuse for ignorance relating to measures which are for the benefit of the people.

THE CONTROVERSY IN MICHIGAN.

THE bitter attacks on Dr. Hugh Cabot and the policies of the University of Michigan have led to conferences between officers of the Michigan State Medical Society and a committee of the University. It is reported that a common understanding has been reached. In a statement relating to the controversy it appears that the University and Dr. Cabot are opposed to state medicine and to "those policies or movements that have for their object the establishment of any such forms for the practice of medicine."

An unprejudiced study of the vigorous expressions of opinions set forth by writers in the Middle West seems to warrant the conclusion that the attack appeared to demonstrate the suspicious and apprehensive state of mind of those who feel that there is imminent danger of the blighting influence of state medicine. It may be well for the profession to be alert, and critical of all legislative and public health measures, but that any large number of prominent men in the profession are joined with any group of people who would destroy estab-

lished medical ideals or enslave the profession is beyond question.

Dr. Cabot has previously stated that he was opposed to state medicine, so called. We need to keep clearly in mind that the term "state medicine" is interpreted very differently by those who use this term. So far as it applies to preventive medicine and the dissemination of information relating to the cure and control of diseases, the State has a useful function and would be supported by most physicians. But if there is any suggestion of invading the relation of the reputable practitioner with his patients and assuming the clinical care of the sick who are not indigent, the profession would oppose such function to the bitter end.

If there was any purpose in the plan of the Michigan University to embark on an advertising propaganda designed to draw patients away from the family doctor, it has apparently been abandoned in the interest of harmony. It is much more likely that language employed did not clearly set forth the purpose of the hospital and medical school and that a wrong impression was created.

The medical profession is to be congratulated on the signing of an armistice which will probably be a treaty of peace.

PELLAGRA.

In the *United States Public Health Reports* for March 3, 1922, appears an article by Joseph Goldberger, Surgeon, and W. F. Tanner, Assistant Surgeon, United States Public Health Service, which gives the opinions of investigation relating to the etiology and treatment of pellagra. The conclusions are as follows:

Diet is the primary controlling factor in the causation and prevention of this disease;

The disease is not transmissible;

Active cases respond promptly to exclusive dietary treatment except in rare instances;

Change of environment is not necessary;

The disease can be prevented by means of a suitable diet without intervention of any other known factor, hygienic or sanitary.

In addition to defective diet there is probably an essential infective factor. Probably the defective diet operates merely by lowering resistance to infection. This explanation, however, is hypothetical because evidence of the existence of an essential infective agent has not yet been exhibited. Also, it is not yet known exactly the essential dietary factors.

Investigators seem to believe that the deficient dietary constituents may be the relative proportions of some of the following named substances: protein, mineral element, anti-neuritic, and possibly, fat-soluble vitamins. From this the possibly essential factors are an

amino-acid deficiency, a deficient or faulty constitution of the mineral element, a deficiency of the fat-soluble vitamins and, perhaps, some unknown factor. At the present time, none of the known vitamins are regarded as the one essential factor.

The following summary is a clear exposition of the problems as studied up to the present time:

The more important part of the evidence proving diet to be the primary controlling factor in the prevention and causation of pellagra is briefly summarized.

Cases of pellagra are reported that were observed to occur in individuals who were known to have consumed daily, during period of not less than two and one-half months immediately before the onset of the distinctive eruption, what is judged to have been a liberal supply of mineral elements and the known vitamins, which would indicate that a deficiency of these dietary factors is not essential in the causation of the disease.

These factors having thus been excluded, the dominating rôle of diet in the prevention and causation of pellagra must be referred primarily to the character of the protein (amino-acid) supply, this being the only other dietary factor at present known to be necessary to physiological well-being.

On the assumption that all the dietary factors essential in human nutrition are known, it may be concluded that the essential etiological dietary factor is a specific defect in the amino-acid supply, probably in the nature of a deficiency of some special combination or combinations of amino-acids.

There is reason to believe that besides the specific amino-acid defect, pellagra-producing diets may and probably frequently have other more or less serious faults, including non-specific amino-acid deficiencies which may operate as accessory etiological factors.

In some preliminary therapeutic trials with amino-acids the dermal lesions in each of two cases seemed to show a markedly favorable reaction to cystine; and in a third case a steady gain in weight, with some improvement in diarrhea, accompanied the administration of both cystine and tryptophane.

A CRITICISM OF PHYSICIANS BY A PHYSICIAN.

THE profession has become accustomed to adverse comment and even bitter criticism by the laity. The opposition sometimes exhibited towards the practice of medicine by the ignorant arouses pity in the minds of physicians, but when a doctor occupying a commanding position makes a public assertion that "The medical profession quietly allows millions of

people to continue in ignorance of great strides in medical practice, which would quickly cure many who are now letting themselves die through fear of doctors and hospitals," and in another part of the report of the interview he is quoted as saying that "The attitude of the medical profession, in failing to teach the public anything about the great advances of medicine and in discouraging public discussions of it, often has the result of causing the ignorant to get their medical knowledge from quacks. A campaign of publicity to give the public the right attitude towards medicine would wipe out disease completely."* — he is open to censure. These statements, which have been given publicity in the press, are credited to Dr. Copeland, Commissioner of Health for New York City.

If Dr. Copeland believes his own statements, he is not informed concerning the efforts which are made in Boston to enlighten the public by means of public lectures on medical subjects and the dissemination of literature among the laity relating to cancer, tuberculosis, diphtheria and other important diseases.

It is possible that the reporter did not give Dr. Copeland's views correctly, for the most visionary enthusiast would hesitate to say that all the information in the world at the present time would, even if understood and applied, wipe out disease completely.

POST-OPERATIVE PULMONARY COMPLICATIONS.

In an analysis of 7,900 operations, Dr. Alma Vedin, anaesthetist to the New York Hospital, states that there were 120 post-operative complications in this series, or 1.51 per cent. The complications consisted of lobar and broncho-pneumonia, acute bronchitis, pleurisy (acute fibrinous, sero-fibrinous and suppurative), and embolism of the pulmonary artery, the exact figures being 63 lobar pneumonia, 20 bronchial, 14 acute bronchitis, 11 pleurisy and 12 of embolism of the pulmonary artery. There were 29 deaths; of the 12 cases of embolism 10 died. An analysis of these complications following abdominal operations shows that there is a larger percentage following upper abdominal as compared with those in the lower abdominal regions. The greater number of complications appeared within two days following operation.

The recommendations for careful examinations before and intelligent care after operations are pertinent. The paper appears in *Current Research in Anaesthesia and Analgesia* for March, 1922, published by the National

Anaesthesia Research Society. Surgeons and anaesthetists should read this paper.

THE RESTRAINT OF A TYPHOID CARRIER.

"TYPHOID MARY," in her time, served a useful purpose in demonstrating the danger of the carrier. The control of the carrier has been an important problem. The Chicago Department of Health has had to deal with a Mrs. Barmore, who was found to have been responsible for a number of cases. This woman had been conducting a boarding house and furnished the boarders with contaminated food. She was placed under quarantine by the authority of the State Department of Health. Since she was thus deprived of the means of securing a livelihood, she brought suit, under *habeas corpus* proceedings, for the purpose of obtaining her liberty. Her appeal was heard by the lower and, afterward, the Supreme Court of the State, and the action of the Department of Health upheld. She is now living under rules and regulations imposed by the Department of Health.

PREMEDICATED ALCOHOL.

AMONG the complicated requirements which are in force another plan is being considered in Washington which, if adopted, will permit the use of a form of denatured alcohol under the term "Premedicated," for use in remedies intended for internal administration. This plan appears to be advocated by the manufacturers of proprietary preparations. The method to be employed consists of having one or more ingredients of the proposed preparation added to the alcohol, and the manufacturer can then procure the alcohol free of tax.

This is ingenious but involves putting a heavy burden on manufacturers of regular pharmaceutical products, but is of very little inconvenience to the proprietary medicine concerns. For example, the makers of Lydia Pinkham's Compound would send on some of the drug contents of the so-called medicine and, after being incorporated in the alcohol, they would get the alcohol tax free. A pharmacist would have to send on the medicinal ingredient of his various tinctures and other alcoholic preparations. Some preparations require pure alcohol and some diluted alcohol, according to the solubility of the extractive matter in the drug, so that a pharmacist who makes his own tinctures, elixirs and fluid extracts would have to have as many varieties of medicated alcohol as he may need in his laboratory.

*Special dispatch to Boston Herald, February 11, 1922.

Dr. Fullerton Cook, Chairman of the Revision Committee of the Pharmacopeia, has declared that a plan of this kind would endanger our official standards, and the scientific control of certain drugs would be lost, because the mixture would be made by distillers' employees and not by those who are trained to handle pharmaceutical preparations.

The price to the doctor and patient of these preparations would be increased. It is estimated that the Government would lose about \$20,000,000 of revenue and the patent medicine manufacturers would be the ones to derive the greater benefit.

Here is an opportunity for the physicians to use influence. The A. M. A. ought to be actively at work.

NEWS ITEMS.

DEATH RATE IN BOSTON.—During the week ending March 25, 1922, the number of deaths reported was 267 against 211 last year, with a rate of 18.23. There were 43 deaths under one year of age against 39 last year.

The number of cases of principal reportable diseases were: Diphtheria, 78; scarlet fever, 57; measles, 140; whooping-cough, 21; tuberculosis, 34.

Included in the above were the following cases of non-residents: Diphtheria, 10; scarlet fever, 8; whooping-cough, 1; tuberculosis, 8.

Total deaths from these diseases were: Diphtheria, 1; scarlet fever, 1; whooping-cough, 1; tuberculosis, 15.

Included in the above were the following cases of non-residents: Tuberculosis, 3.

MASSACHUSETTS GENERAL HOSPITAL.—A clinical meeting of the out-patient staff was held in the Lower Out-Patient Amphitheatre on Wednesday, March 29. Program: "Local Anaesthesia," Dr. A. W. Allen; "Gummatous Cervical Adenitis," Dr. W. P. Coues; "Anaesthesia in the Reduction of Fractures," Dr. G. A. Leland; "Report on the Sterility Clinic," Dr. A. W. Reggio; "Cases of Tendon Surgery," Dr. T. W. Harmer.

FRANKLIN DISTRICT MEDICAL SOCIETY.—The regular bi-monthly meeting was held on Tuesday, March 21st, in the roomy, well-ventilated sun-parlor of the Weldon Hotel. This was a very agreeable meeting place and undoubtedly the background of growing plants and transparent walls was refreshing and conducive to the alertness of those privileged to attend. Eighteen men, or about 50 per cent. of our membership, were in attendance. Dr. A. E. Johnson read a comprehensive

paper by A. I. Ringer, M.D., of New York, "Chronic Nephritis from the Viewpoint of the General Practitioner." Few of our profession have the writing facility of men like Woods Hutchinson or Richard C. Cabot. Emphasis has been made at our meetings of the value of reviewing and culling from the literature of other men as a substitute for working up a paper in the ordinary way. Dr. Johnson found something that was very acceptable. Dr. H. G. Stetson gave a case report of "Myelogenous Leukaemia," and Dr. W. A. Hutton told something of its previous history and findings. Dr. A. H. Ellis discussed an atypical case of "Typhoid Fever." A few weeks ago there appeared an editorial in the *Greenfield Gazette and Courier* reflecting somewhat upon the attitude of regular practitioners toward chiropractic and other cults. Dr. B. P. Croft made an answer to this in the March 11th issue of that paper, and letters from Dr. Bartol, President of the Massachusetts Medical Society; from Dr. Channing Frothingham, Chairman of special committee to study these cults, and from Dr. G. H. Ellison, of Spencer, a man of active public spirit, commending Dr. Croft's letter, were read. An animated discussion followed as to the policies which should be pursued by the profession toward these cults, in which Drs. Howe, Upton, Croft, Goldsburly, Sutor, F. W. Johnson, Marble and Stetson took part. Meeting adjourned.

P. W. GOLDSBURY, M.D., Reporter.

STAFF MEETING OF THE WORCESTER STATE HOSPITAL.—On March 16th, at the Worcester State Hospital, Dr. Harry Solomon spoke at the bi-monthly staff luncheon. New work on cerebrospinal pressure was explained in an interesting manner by Dr. Solomon and following the discourse a general discussion took place.

Drs. George E. de Schweinitz, Philadelphia; Charles W. Richardson, Washington, D. C., and Fred B. Lund, Boston, have been appointed as the Committee on the Gorgas Memorial of the American Medical Association by President Hubert Work. This appointment was made in compliance with the request from the Gorgas Memorial Institute of Tropical and Preventive Medicine of Panama for the cooperation of the American Medical Association.—*The Nation's Health*.

THE State Department of Public Health is sending letters to pregnant women for the purpose of furnishing information and thereby cooperating with the attending physician. Post-natal letters are also sent every month until the child reaches the age of one year. These letters are given to physicians and others interested, also.

NEW ENGLAND SOCIETY OF PSYCHIATRY.—Ninety members of the New England Society of Psychiatry were entertained by Dr. William A. Bryan, Superintendent, at the Worcester State Hospital, Thursday, March 23, 1922. Many availed themselves of the invitation to visit various parts of the hospital before luncheon. The meeting was called to order by the President, Dr. Walter E. Fernald, and the following papers were read: "If Psychiatrists are to Study the Problems of Delinquency," Dr. William Healy, Boston; "The Application of Cistern Puncture in Psychiatric Practice," Dr. Arthur H. Ruggles, Providence, R. I. At the conclusion of the meeting a vote of thanks was extended to Dr. Bryan and the trustees for their hospitality.

WASHED AIR.—The New York State Commission on Ventilation has been experimenting with washed and recirculated air in two New York City school rooms, with the result of securing two per cent. greater progress in mental and physical efficiency of the pupils.

IMPORTANT MEETINGS.—The meetings in Washington, to be held the first week in May, are of great importance. A program of the scientific feature of the sessions of the American Climatological and Clinical Association is published in this issue. Practitioners who may be able to attend will be instructed and entertained by the papers and discussions presented by eminent physicians.

REGISTRATION OF NURSES.—The result of the last examination of applicants for State Registration is as follows: Number examined, 253; number registered, 201; number rejected, 52. Ten applicants were awarded the special distinction of securing registration "with honor."

DURING March, the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in *New and Nonofficial Remedies*:

The Intra Products Co.: Sterile Suspension Mercury Salicylate in Cacao Butter. Sterile Suspension Mercury Salicylate in Olive Oil.

Meadows Oil and Chemical Corp.: Ammonium Ichthyolate—Meadows.

LEGISLATIVE MATTERS.—House 601.—Bill relative to physical examination of pupils in the public schools. Adverse report accepted in concurrence by Senate. *Final.*

IMPORTANT NOTICE.

Announcement of meetings to be held on and after next Thursday should reach the desk of the Editor of the JOURNAL not later than next Saturday before noon. The printers do not work Saturday afternoon and the material is locked up in the forms on Monday, and goes to press Tuesday morning. The wrapping and mailing begins Wednesday. Please forward copy early.

Miscellany.

CLINICAL MEETING OF THE SURGICAL STAFF OF THE MASSACHUSETTS GENERAL HOSPITAL, JANUARY 16, 1922.

REPORT OF PROGRESS IN INVESTIGATIONS ON SHOCK.—DR. MONROE A. McIVER.

AFTER a brief review of the literature bearing on the relation of toxemia to traumatic shock, Dr. McIver described a method for the establishment of "cross circulation" between a normal and a traumatized animal. The results of the experiments were then given.

"Ten complete experiments have been carried out. Of this number seven non-traumatized animals who had received blood from the traumatized animals developed typical shock within a half hour. In three cases no shock was produced. Four experiments have been carried out as controls. None of these animals developed shock within one hour, but at the expiration of an hour and a half, in one case, the blood pressure had fallen to shock level."

Dr. McIver feels that very suggestive evidence has been obtained that some substance capable of producing shock is taken up by the circulation from a traumatized area.

ABSTRACT.

Drs. C. A. Porter and W. M. Shedden reported a case of total avulsion of the scalp followed by Reverdin grafting. The patient later complained of pressure headache and recurrent ulceration of the new scalp. Dr. Porter therefore made multiple drill holes through the calvarium to the dura, thereby establishing a collateral circulation, after which the ulcerations healed and the headache disappeared.

The authors summarized nine cases, of avulsion of the scalp at the Massachusetts General Hospital and also reviewed the literature.

Dr. Brewster reported 24 cases of right colectomy, with two deaths (a mortality of 8.3 per cent.), and three cases of total colectomy, with one death.

He summarized his report as follows:

Twelve cases of epilepsy were operated upon, and in no case were the seizures stopped by the operation.

Nine cases were operated upon for symptoms supposed to be due to stasis in the ileum and cecum, with two deaths and a perfect result in seven.

It will be seen that the operation does not cure epilepsy; it may relieve constipation and symptoms of stasis, but carries a distinct risk, altogether too great to make it an operation to

be advised for any condition which does not demand relief of a mechanical obstruction.

RÉSUMÉ OF PAPER ON TETANUS, BY DR. R. H. MILLER.

The speaker reviewed the literature of tetanus, especially in regard to its occurrence in the World War, laying especial emphasis on the great value of the antitoxin, not only in preventing the occurrence of the disease, but in mitigating the severity of it, if it does occur. Statistics have shown that after prophylactic injection, local tetanus occurs in about 10 per cent. of the cases, whereas without, the local form occurs in only 1 per cent.; also, that the prophylaxis lengthens the incubation period to an average of about 35 days. In the British Army the mortality from tetanus fell from 57.7 per cent. to about 25 per cent. following prophylaxis. The speaker then reported 116 cases at the Massachusetts General Hospital from 1872 to the present time, showing how the mortality has steadily fallen with the more and more intensive use of antitoxin, which is given intraspinally, intravenously, and around the wound.

DR. HENRY C. MARBLE: At the Massachusetts General Hospital during the past two years, 1920 and 1921, there were 524 cases of fractures admitted to the wards for treatment.

Of these, 98 required open surgical operation. The operation may be divided as follows: Primary operation, 48; mal-union or non-union, 23; compound fractures, 27.

Primary operations consisted in general of replacement operations, that is, placing the bones in anatomical apposition as soon as possible and holding them in reduction by splints or plaster casts, rarely by absorbable material.

The operations used for mal-union or non-union were bone grafting, refracture, or excision of part of the bone.

Operations for compound fractures were débridement, followed by fixation in plaster of Paris or steel splints.

Infection. In the primary cases, there was infection in three cases; in the mal-union or non-union classes, there was infection in two cases. Of the compound fractures, 11 had more or less infection.

Bone Grafts. Osteoperiosteal graft, ten; inlay graft, seven; beef bone, one.

Bone Plates. Bone plates were applied three times; screws, once; nail, once; skeletal traction was applied 28 times (not included in the operations listed above); Steinman pin was used 12 times; ice tongues, 16.

Conclusion. The tendency in operative treatment of primary fractures has been towards simple replacement without internal fixation.

In cases of mal-union or non-union, the operations of choice are refracture or grafting by excision of a part of the bone. Skeletal traction is the method of election for traction in the lower extremity. Metal internal fixation is rarely used. Immediate reduction plus external fixation has been found the method of choice.

SAVING THE PHILIPPINES.

MAJ.-GEN. LEONARD WOOD, Governor-General of the Philippines, has found in that far-away section of the United States conditions indicating human life is very much the same in its perils and conditions there as at home. He has announced, as a foundation for the improvement of conditions in the Islands, an intensive campaign to teach the people how to avoid and combat the diseases that sap the vitality of the country. He has instructed the Director of Health Service to prepare a circular, setting forth the causes of various diseases and the methods of preventing them and stamping them out, which are not only to be posted in public places but which are also to be read to every class in the public schools throughout the Islands. —*The Red Cross Courier*.

SMALLPOX.

THE Department of Commerce, through the Bureau of the Census, announces that there have been very few deaths from smallpox in recent years. Since the beginning of annual compilations in 1900 the highest rate from this cause in the death registration area of the United States was 6.6 per 100,000 population in 1902, while in 1903 it was 4.2, and in 1904, 2.1, since which time the rate for the registration area has never reached 1 per 100,000 population. Much higher rates in certain states and cities, however, clearly show that the danger of smallpox in an unvaccinated population must not be lost sight of. The high rate (9.2) in 1920, in Louisiana, should serve as a warning.

BACKWARD CHILDREN.

BACKWARD children are not always, perhaps not often, backward because of either mental deficiency or slothfulness, says the *U. S. Public Health Service*. Many of them are backward solely because of such ordinary and easily remediable defects as adenoids, near-sightedness, or bad teeth.

A case in point was recently reported by the official representative of the Public Health Service in the eighth sanitary district of Vermont,

in which the Service is coöperating in a rural health work project.

Medical inspection of one of the graded schools in October, 1919, showed that it had been thought necessary to instruct in a special room sixteen pupils who had seemed to be unable to keep up with their respective classes. Physical examination showed that each of the sixteen had some serious hampering physical defect (chiefly enlarged tonsils, adenoids, or defective hearing or eyesight) which, rather than any mental handicap, was the probable cause of their inability.

Through the coöperation of the school directors, the facts were brought to the attention of the parents or guardians of the children, and all were set right before the end of the year.

On reëxamination of the pupils the next December (1920), it appeared that all of the sixteen previously backward children had caught up with their proper grades and were keeping up in them with their classmates. A year later, in December, 1921, some of these sixteen children were among the mental and physical leaders in their grades.

AMERICAN BIOLOGICAL STAINS.

H. J. CONN, Chairman of the Committee on Standardization of Biological Stains, in an article published in *Science*, March 17, 1922, declares in favor of American stains, and that the Grüber stains are not as constant or uniform as was formerly supposed. American stains are particularly good in bacteriological work. Certain American methylene blues are superior to any used before the war.

The chief uncertainty is whether the producers of American stains will stay in the business. The future depends on action by Congress.

INSTRUCTIVE DISTRICT NURSING ASSOCIATION.

THE year 1922 was ushered in for the Instructive District Nursing Association by a rush of work which indicates a marked change in health conditions from those of 1921.

Beginning almost with the first day, the new patients poured in until the number for January rose to 500 more than those of the same month last year, and those of February to an increase of 1,739 more than those of February, 1921. The somewhat startling totals of the two months mount up to 7,163 new patients and 54,730 visits against 4,961 new patients and 47,578 visits during the same months, 1921.

The remarkably low death rate was the outstanding feature of the extraordinary pressure of work during February, only 65 deaths occur-

ring—and many of these from chronic diseases—among the 10,000 patients carried during the four weeks of February. This means that while the number of patients increased enormously, the death rate remained practically normal.

The prevalence of grip, pneumonia, bronchitis, tonsillitis, and very severe colds was chiefly responsible for the increase of work during February, when 1,680 such cases were admitted. This is the first time since February of 1920 when there has been anything approaching an epidemic of these diseases; during that month there were 1,893 cases of grip and pneumonia admitted, that with an average amount of other diseases, made a total of only 252 more new patients than were admitted this month.

This was not the case in January, when there was a general increase in all diseases.

During the two months there were 138 cases of measles, 74 of chicken-pox and mumps, 6 of typhoid fever.

Eight hundred and twenty-seven pregnant women were admitted as patients, and 921 new-born babies.

The number of deliveries attended by the nurses in the four stations where such service is established, was 94—curiously enough, the exact number attended in 1920.

The nurses were very susceptible to the sicknesses prevalent during February. On one day, 26 were off duty, most of them sick themselves; others, because of sickness in their families. Because of the high standards maintained by the Association, it was extremely difficult to fill the places of the absentees, and never possible to increase the staff adequately. As a consequence, the burden was very heavy, more than twice the usual work being carried by a staff which averaged an increase of only nine nurses. The very sick people needed, many of them, two visits daily. It was, therefore, a struggle to make the prenatal and other preventive visits which are an essential part of all family health work.

ANNOUNCEMENT OF THE MEDICAL FELLOWSHIPS.

THE National Research Council announces the establishment of Fellowships in Medicine created for the purpose of increasing the supply of thoroughly qualified teachers in medicine in both clinical and laboratory subjects and in both curative and preventive aspects. The fellowships are supported by appropriations of the Rockefeller Foundation and the General Education Board, amounting in total to one hundred thousand dollars a year for a period of five years. Those receiving awards will be known as Fellows in Medicine of the National Research Council.

To qualify for appointment as a fellow, a candidate must have a degree of Doctor of Medicine or Doctor of Philosophy from an approved university, or preparation equivalent to that represented by one of these degrees. Only citizens of the United States or Canada will ordinarily be appointed, although the fellowship board is authorized to set aside this provision in exceptional cases. The fellowships will be open to both sexes.

Since the principal purpose of establishing these fellowships is to increase the number of competent teachers in the field of medicine, each incumbent will be required to gain experience in teaching. As creative work is regarded as essential to the best teaching, emphasis will also be placed upon research.

Fellows will be at liberty to choose the institutions or universities in which they will work, as well as the men under whose direction they will carry on their researches, subject to the approval of the fellowship board.

Appointments are to be made for a period of twelve months, beginning at any time in the year, with an allowance of six weeks for vacation. The time may be extended, however, if in the judgment of the board, the work which the fellow has done justifies it. The stipends are not definitely fixed in amount, but they are intended to enable the individual to live comfortably while carrying on his special work as a fellow.

The fellowships will be administered by a special committee, known as the Medical Fellowship Board of the National Research Council.

Correspondence concerning the fellowships should be addressed to the Division of Medical Sciences, National Research Council, Washington, D. C.

HEALTH LEGISLATION IN CONGRESS.

Reorganization of the Federal Departments.

—The plan for a comprehensive reorganization of the Federal Departments, including the formation of a new department of public welfare, was submitted to the President six weeks ago. It has been announced that the President is giving this matter personal attention. In fact, the administration is committed to such reorganization and to a welfare department, having considered the latter as important as the Budget System, but there seems to be doubt in the minds of many as to whether the welfare department will ever materialize. The fundamental difficulty in the whole reorganization scheme is that the Cabinet officers are opposed to surrendering authority over bureaus already within their respective jurisdictions. Differences of opinion have arisen, and opposition has crystallized. It is a question whether

the President will submit the reorganization scheme to Congress at all this year. It is considered by many as unlikely that legislation on the subject would be passed, on account of its controversial nature. It would seem, therefore, probable that the various health functions of the Government will remain *in statu quo* for some time.

Appropriation Bills.—Commerce and Labor; Increase for Children's Bureau. H. R. 10559. Passed the House of Representatives, February 25, 1922. Passed the Senate, March 9, 1922, with amendments. Amendments to this bill in the Senate will increase the total appropriation of the Children's Bureau from \$1,511,040 to \$1,551,040. The item to investigate and report upon matters pertaining to the welfare of children and child life is increased from \$80,000 to \$120,000. The Senate also increased the appropriation for the Women's Bureau from \$75,000 to \$100,000.

H. R. 10101 passed the House of Representatives, February 7, 1922; passed the Senate, March 7, 1922. The Senate amended this bill by providing for the erection of a school for feeble-minded persons at a cost of \$300,000. The bill is now in conference.

District of Columbia.—For support of indigent insane of the District of Columbia in St. Elizabeth's Hospital, \$148,000.

United States Veterans' Bureau.—For vocational rehabilitation, \$73,714,182; for medical and hospital services, \$20,278,930. (There is a provision in this section permitting the U. S. Veterans' Bureau to allot portions of this appropriation to the Public Health Service, the Board of Managers of the National Home for Disabled Volunteer Soldiers and the War and Navy Departments to be used in the care of disabled World War veterans.)

Children's Bureau.—To carry out the provisions of the maternity and infancy act, \$490,000.

Public Building—Construction.—For repairs to Fort Mackenzie, Wyoming, U. S. Public Health Service Hospital, \$100,000.

Department of Agriculture.—H. R. 10730, introduced by Mr. Anderson from the Committee on Appropriations, March 6. This bill, which contains the annual appropriations of the Department of Agriculture for the coming year, has several items of public health.

Bureau of Animal Industry.—Eradication of tuberculosis, \$2,578,800; meat inspection, \$891,180; investigations of serums, antitoxins, etc., \$82,000.

Forest Service.—For sanitary facilities on public camp grounds, \$10,000.

Veterans' Bureau.—H. R. 10864, introduced by Mr. Langley, March 11, 1922; reported from Committee on Public Buildings and Grounds, March 14, 1922, authorizes the director of the

U. S. Veterans' Bureau to provide additional hospital and out-patient dispensary facilities for veterans. The bill authorizes the director to accept gifts or donations for this purpose, an appropriation of \$17,000,000 to be made.

Additional Appropriations Requested by the Executive.—The President has submitted supplemental estimates to the Senate requesting \$8,800 for the insane of Alaska (S. Doc. 154); \$11,000 for a water supply at Ellis Island (S. Doc. 155); and \$7,000 for medical charities in the District of Columbia (S. Doc. 158).

Incorporation of the American Society for the Control of Cancer.—The Senate Judiciary Committee voted on March 13 against all legislation proposing federal charters for private organizations which are not formed for the purpose of executing some power granted in the Constitution. This action is adverse to the bill for the incorporation of the American Society for the Control of Cancer (S. 802). The Light Houses for the Blind are also affected by this action.

Regulations Governing Relief of Indians.—H. R. 10772, introduced by Representative Snyder, March 7, 1922; referred to the Committee on Indian Affairs. This bill authorizes the Secretary of the Interior to extend medical care and other relief to the incompetent and restricted Indians, but provides that the cost of the necessary assistance shall be a charge against the individual Indian and his estate.

Creation of Federal Motion Picture Commission.—H. R. 10577, introduced by Representative Appleby, February 22, 1922; referred to the Committee on Education. This bill creates a new division of the Bureau of Education to be known as the Federal Motion Picture Commission. There would be three commissioners appointed by the President with full power to review motion picture films and issue licenses for them. The bill states that no picture which "would tend to impair the health, debase or corrupt the morals of children or adults, or incite to crime, or produce depraved moral ideas or debase moral standards or cause moral laxity in adults or minors," may be shown.

Miscellaneous Bills.—S. J. Res. 43. Granting authority to Central Committee of the American Red Cross to continue use of temporary buildings in Washington, D. C., as headquarters.

S. Res. 250. Authorizes the printing of 2,500 copies of Memorial Services held in honor of Major-General William C. Gorgas for the Senate Document Room.

S. 3278 provides building in District of Columbia for care of tubercular pupils.

OPPORTUNITIES FOR SERVICE IN VENEREAL DISEASE CLINICS.

MANY applications for assistants in venereal disease clinics have been received by the Associated Out-Patient Clinics. These positions are both for men and women, graduates and students. In most instances physicians with no special training in venereal disease will be considered. Any physicians who desire an opportunity to learn this specialty should communicate with Dr. Alec N. Thomson, 15 West 43rd Street, New York City.

The Section on Venereal Diseases of the Associated Out-Patient Clinics, of which Dr. Thomson is Secretary, has offered to act as a clearing house for information regarding opportunities for dispensary assistants in the venereal clinics of New York City.

The above applications for assistants came in reply to a letter and questionnaire recently sent to the directors of the various venereal disease clinics, inviting them to state their needs for assistants and to specify, not only the qualifications desired, but the clinical and professional opportunities offered.

PROPAGANDA FOR REFORM.

Another Remonstrance Against Mercury Inhalation.—During the last few years the attention of the medical profession has been directed by clever propagandists to the treatment of syphilis by procedures which involve the volatilization of mercury-containing mixtures by heat and the inhalation of the resulting volatile products. There is nothing novel in the principles concerned. Inhalations, as well as fumigations of mercury, have been tested at various times and the procedures have been abandoned because of the uncertain dosage. The Council on Pharmacy and Chemistry has refused to endorse preparations proposed for the treatment of syphilis which depended essentially on the administration of mercury by inhalation (Spiroicide not admitted to N. N. R.). In this decision it is sustained by a re-investigation of the inhalation treatment of syphilis carried out by Cole, Gericke and Sollmann. The investigators point out that the assumption that mercury is more promptly absorbed by the lungs was based on physical misconceptions. In fact, the mercury is condensed on the mucous membranes of the mouth, pharynx and respiratory tract. That in the mouth and pharynx is, for the most part, swallowed; and the absorption then takes place by the gradual conversion of the mercury into soluble compounds. In other words, the administration of mercury compounds by inhalation has no advantage over oral administration. It has the serious disadvantage of in-

TO MEMBERS OF THE MASSACHUSETTS
MEDICAL SOCIETY.

If your annual dues are unpaid, you will not receive the JOURNAL.

definite dosage (*Jour. A. M. A.*, March 4, 1922, p. 654).

Our Knowledge of Vitamines.—It is generally accepted that a well-balanced diet provides the individual with such vitamins as are necessary to maintain growth and nutrition. The *British Medical Journal*, in a leading editorial, reiterates the statement that an abundant supply of vitamins exists in all fresh vegetables and that a considerable quantity occurs in milk and meat, provided the latter substances are obtained from animals fed on fresh foods. A normal adult, living on an ordinary diet containing a reasonable proportion of fresh vegetables is, therefore, certain of obtaining a plentiful supply of vitamins. Of all the mass of evidence which has accumulated relative to these substances, this fact is the point of greatest importance. It is, however, very unfortunately, the one point which those commercially inclined are unwilling to recognize (*Jour. A. M. A.*, March 11, 1922, p. 734).

VIOLATION OF THE REGULATIONS RELATING TO THE USE OF NARCOTIC DRUGS.

DR. J. WASHINGTON HILL, who combines preaching with the practice of medicine, is again before the court for an alleged violation of the law relating to the use of narcotic drugs. It is alleged that Dr. Hill sold needles for hypodermic use. This is not his first offense, for after a previous experience before the court, he was fined and his registration as a practitioner of medicine annulled for a time. A man who professes to be a teacher of the principles of religion, in addition to holding himself out to be able to practise medicine, must be singularly devoid of ethical sense and worldly wisdom, in conducting himself so as to be suspected of irregularities of similar type on successive occasions. Perhaps he has the gambling instinct and enjoys the uncertainties of irregular behavior.

A HALF CENTURY OF PUBLIC HEALTH.

UNDER this title, the American Public Health Association is publishing a book of great value in commemoration of the semicentennial of the Association.

Probably the last letter ever written by Professor William T. Sedgwick expressed approval of the plan to publish this volume.

American Climatological and Clinical Association.

TWELFTH CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

Thirty-ninth Annual Meeting at Washington, D. C., May 2, 3, 4, 1922. President, William Duffield Robinson, Philadelphia; Secretary and Treasurer, Arthur K. Stone, Framingham Centre, Mass.; Recorder, Cleveland Floyd, Boston; Committee of Arrangements, Chairman, Thomas A. Clayton, M.D., 1826 R Street, N.W., Washington, D.C. The Headquarters of the Association will be at the New Willard Hotel.

PROGRAM: First day, Tuesday, May 2: Meeting of the Council, 9.15 A. M. Scientific Session, 10 A. M. to 12 M. Business Session, 12 M. Luncheon Recess, 1 P. M. Scientific Session, 2.30 to 5 P. M. General Session of the Congress of American Physicians and Surgeons, 8 P. M. Second day, Wednesday, May 3: Scientific Session, 9 A. M. Business Session, 12 M. Election of Officers. Adjournment, 1 P. M. Luncheon Recess. Meeting of the Congress of Physicians and Surgeons, Hotel Washington, 2.30 P. M. Annual Dinner, Cosmos Club, 7 P. M. Third day, Thursday, May 4: Scientific Sessions, 9 A. M. to 2.30 P. M.

SCIENTIFIC SESSIONS, New Willard Hotel, Tuesday, May 2, 10 A. M. President's Address, William Duffield Robinson, Philadelphia. Memorial Notices: Charles E. Quimby, by Guy Hinsdale; Robert Childs Paterson, by J. Woods Price.

1. The Prognosis of Tuberculosis. A Study of 1000 Former Patients of the Trudeau Sanatorium, by F. B. Trudeau, Saranac Lake. 2. Relationship Between the Thyroid and Nocturnal Dyspnea, by Roy D. Adams, Washington. 3. The Diagnosis of Juvenile Tuberculosis, by John B. Hawes, 2nd, Boston. 4. Bacteriemia, by Raymond Clark, Brooklyn.

BUSINESS MEETING, 12 M. Luncheon, guests of Dr. Charles W. Richardson, 2.30 P. M.

5. Pneumothorax, by J. Woods Price, Saranac Lake. 6. A Study of Seven Cases which Present Diastolic Heart Murmurs, by John M. Swan, Harry B. Clough, James M. Flynn, Rochester, N. Y. 7. The Influence of Cardiac Conditions and Infection of Various Kinds of Lung Tuberculosis, by H. R. M. Landis, Philadelphia. 8. Some Clinical Observations on Angina Pectoris, by Samuel A. Levine, Boston (by invitation). 9. Lymphocyte Index in Tuberculosis, by Gerald Webb, Colorado Springs. 10. Report of Committee to Consider the Manner of Co-operation in Scientific Work with the American Meteorological Society, by Carroll E. Edson, Denver, Colo., Guy Hinsdale, Hot Springs, Va. 11. The Bile, with Especial Reference to Bacteriology, by George Morris Piersol and H. L. Bokur, Philadelphia. 12. Co-operative Research on the Atmosphere and Man, by Ellsworth Huntington, Yale University (by invitation).

GENERAL SESSION OF THE CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS, 8 P. M. President's Address, Dr. Frank Billings.

Wednesday, May 3, 9 A. M. 13. Review of Some Novel Methods of Regulating the Circulation Which May Prove of Clinical Value, by J. Madison Taylor, Philadelphia. 14. Chronic Uremia. Its Early Diagnosis and Treatment, by Wm. H. Mercur, Pittsburg. 15. The Part of Industry in Health Work, by Arthur K. Stone, Framingham, Mass. 16. Animal Diseases Communicable to Man, by Thomas B. Rodgers, Woodbury, N. J. (by invitation). 17. Pay Clinics, by

Walter L. Niles, New York City. 18. A Study of the Glucose Tolerance Test in the Obese, by James E. Paulin, Atlanta. 19. Exhaust Gas from Automobiles as a Health Hazard, by Yandell Henderson, Yale University (by invitation). 20. Clinical Observations on the Management of Diabetes Mellitus, by Lawrence Litchfield, Pittsburg. 21. Climatic Treatment of Tuberculosis, with Special Reference to One Hundred and Nine Consecutive Cases Sent to Silver City, New Mexico, during the Past Twenty Years, by B. R. Shurly, Detroit.

ANNUAL MEETING AND ELECTION OF OFFICERS AND NEW MEMBERS, 12 M.

GENERAL SESSION OF THE CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS, 2.30 P. M., the Hall of Nations of the Hotel Washington.

Food and Dietetics. 1. Factors Which Enter into an Adequate Diet, by Dr. E. V. McCollum. 2. Experimental Evidence of the Lack of Vitamin B in Nutrition, by Dr. L. B. Mendel. 3. The Distribution and Properties of Vitamin C, by Dr. H. C. Sherman. 4. The Relation of the Diet to Rickets, by Dr. Paul G. Shipley. 5. The Pellagra Problem and its Relation to Diet, by Dr. Joseph Goldberger. 6. The Bearing of the Newer Findings upon the Problems of Medical Practice, by Dr. L. Emmet Holt.

ANNUAL DINNER, COSMOS CLUB, 7 P. M.

Thursday, May 4, 9 A. M. 22. The Relative Importance of the Physiological Compared with the Anatomical Conception of Disease as Illustrated by Tuberculosis, by F. M. Pottenger, Monrovia, Cal. 23. Temperature and Humidity Features of a Near Desert Climate in Southern California, by Ford Ashman Carpenter, Los Angeles. 24. Pulmonary Abscess and its Prevention in Surgery of Upper Air Tract, by Charles W. Richardson, Washington. 25. A Note on the Practice of Artificial Pneumothorax by the Hippocratic School, by Alton K. Krause, Baltimore. 26. *Aerologia by Domenico Panarolo, Rome, 1642*. A treatise on Air and Winds. Dr. Hinsdale will make some remarks about Panarolo and show his volume. By Guy Hinsdale, Hot Springs, Va. 27. Thoracoplasty, by A. G. Shortle, Albuquerque, N. M. 28. Diaphragm Irregularities, by Ralph C. Matson, Portland, Ore.

2.30 P. M. 29. Hyperthermal Baths in Chronic Disease, by Wm. R. Fontescue Fox, London, Eng. 30. Basic Principles of Vaccine Therapy, by J. H. Tyndale, Lincoln, Neb. 31. Prevalence of Goitre in Girls as Noted in the Examination of 1500 Entering Students in Milwaukee College, by J. Gurney Taylor, Milwaukee. 32. Heliotherapy in Tuberculosis, by Guy Hinsdale, Hot Springs, Va. 33. Bronchiectatic Lung Abscess—Operation—Recovery, by Hugh M. Kinghorn, Saranac Lake, and Willy Meyer, New York City.

Correspondence.

OBSERVATIONS OF A MEDICAL STUDENT.

March 25, 1922.

Mr. Editor:

I trust you will not deem it presumptuous on the part of a medical student to send you for publication a communication so full of generalizations such as are permissible only to men of much greater maturity and experience. But you will recall that the medical student of today is in a position to feel the full force of the continual broadside from the

propaganda guns of preventive medicine, and he cannot help but be infected by its enthusiasm.

The work of the American Society for the Control of Cancer is bringing forth a splendid sympathetic response both on the part of individuals and groups, such as insurance companies, to its plea for frequent physical examinations in order to detect malignancy in its earliest stages, and thus to cope with it successfully. There is no reason, of course, why such examinations should not help, in a great measure, to prevent *any* disease of a chronic nature.

Now, just as, proverbially, the shoemaker is poorly shod, and the tailor poorly clothed, the doctor seems to be poorly provided with—if not proper treatment in disease—at least proper prophylaxis against preventable disease.

Few medical students have the time or the inclination for physical exercise of any sort, and fewer medical faculties provide for—or even take the trouble to encourage—such exercise. Physical examinations are voluntary only, and the will is most usually lacking. Medical research workers, because they are working, as a rule, with biological materials that require warm and moist atmospheres, spend 10 to 12 hours a day, and frequently seven days a week, in laboratories thus provided without any regard for their own health. And when doctors get sick enough to go to bed they call in some medical friend who, while he may be most minute in his attention to details of history and examination when dealing with other patients, fails, as a rule, thoroughly to examine his colleague.

The fact that, not infrequently one sees house officers in the larger hospitals, and medical students, under the very eyes of the best clinicians, developing serious cases of pulmonary tuberculosis and full-blown hyperthyroidism, is but a pointer in the general direction to show the carelessness on the part of men most interested in preventing and curing disease, with regard to their own health.

This negligence does not stop with the men associated immediately with the schools and hospitals, but applies particularly to the general practitioners who not only lead most unhygienic lives with respect to sleep and diet, but frequently endanger their lives by carrying on their practice while afflicted with some acute condition for which, if it occurred in a patient, they would prescribe, unreservedly, rest in bed. I am acquainted with two practitioners, one of whom spent the tenth night after having his appendix removed on an obstetrical case, and the other did the same while suffering with the beginning of an attack of influenza. And both are practicing in Greater Boston where, certainly, the risks to the patient of being unprovided with medical assistance in the absence of their own physician are minimum.

Not only with regard to themselves, but frequently with their immediate families evidence exists of gross carelessness or neglect on the part of physicians. As examples of that I need merely mention the not too rare death of a doctor's or nurse's mother from incurable cancer of the breast or uterus, or the death of a doctor's father from urinary infection resulting from hypertrophy of the prostate because his son delayed sending him to the surgeon.

Finally, if not for its own sake, then at least for the sake of setting an example to the general public, the medical profession should wake up to the fact that its members are made, too, of mortal clay, subject to mortal ills.

Sincerely yours,

LEO M. DAVIDOFF,
Harvard Medical School, Senior Year.

REGISTRY OF BONE SARCOMA.

227 Beacon Street,
BOSTON, MASS., February 27, 1922.

Mr. Editor:

I wonder if the result of my letter in your issue of February 2nd would interest your readers? My letter was intended to enable the Registry of Bone Sarcoma to find out how many cases of Bone Sarcoma were known to be living in Massachusetts, whether cured, under treatment, or moribund. It suggested that if every one of the 5494 physicians in this State would drop me a postal stating whether or not he knew of a case, we should have at once the best statistics ever obtained on the frequency of this disease.

In reply I have had, up to date, only seventeen negative and two positive answers. Is this because your Journal is not read or because of the indifference of the medical profession as to whether the frequency of bone sarcoma is known or not?

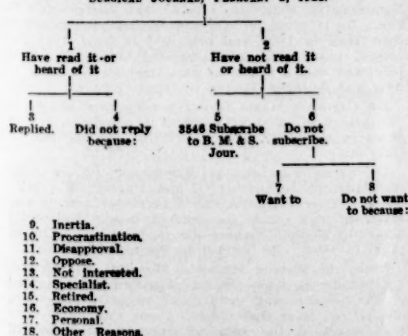
Perhaps your readers may be interested in the human nature problem involved, even if they are indifferent as regards the advance of medical science. Your editorial board may also be interested to know what proportion of your 3546 subscribers in Massachusetts read the Journal thoroughly. I therefore enclose a diagram which aims to analyze the problem.

If you are interested enough to publish this letter and diagram in three successive issues, I will undertake to send a return postal to every physician listed, as living in Massachusetts, in the Directory of the American Medical Association, who has not dropped me a postal a week after the third issue. On one-half of the postal I will have this diagram printed; the other half will have the return address to me. Eventually you can publish the diagram with the numbers following each heading. This will give the facts to the few interested in bone sarcoma and the many interested in the *Boston Medical & Surgical Journal*, and in the psychology of the medical profession.

Sincerely,

E. A. CODMAN, M.D.

5495 PHYSICIANS IN MASSACHUSETTS.
LETTER ON REGISTRY OF BONE SARCOMA IN *Boston Medical & Surgical Journal*, FEBRUARY 2, 1922.



Please reply to this by consecutive numbers, e.g., 1-4-15 means "I have read or heard of the Registry and did not reply because I have retired from practice"; 5-6-8-18 means "I have not read nor heard about the Registry of Bone Sarcoma and do not subscribe to the *Boston Medical and Surgical Journal* from motives of economy."

[NOTE.—Dr. Codman states that he has received forty reports since the publication of his first letter—one positive and thirty-nine negative. The profession is urged to assist in the compilation of facts asked for.—Editor.]

NOTICES.

NEW ENGLAND PEDIATRIC SOCIETY.—The seventy-fourth meeting of the New England Pediatric Society will be held at the Boston Medical Library on Friday, April 14, 1922. The following papers will be read: Treatment of Asthma and Associated Diseases in Childhood, Allan R. Cunningham, M.D., Boston. Leukemia and Severe Anemia in Childhood: A Study of Thirty-Seven Cases, John Lovett Morse, M.D., Boston; Bone Tuberculosis in Childhood (with lantern slides), Frank R. Obert, M.D., Boston. Light refreshments will be served after the meeting. Richard M. Smith, M.D., President; Lewis Webb Hill, M.D., Secretary.

HARVARD BOARD OF OVERSEERS.—The nominating committee of the Harvard Alumni Association will present the names of Dr. William Sidney Thayer, Baltimore, and Dr. Herbert Charles Moffitt, San Francisco, as candidates for the Board of Overseers.

BERLIN PSYCHOLOGICAL LABORATORY.—Dr. Wolfgang Köhler has been appointed director of this institution to fill the vacancy caused by the retirement of Professor Stumpf.

MASSACHUSETTS GENERAL HOSPITAL.—A clinical meeting of the Staff of the Massachusetts General Hospital will be held on Monday, April 10th, at 8.15 P. M., in the Lower Out-Patient Amphitheatre. The program will be as follows: Demonstration of Cases from the Skin Department, Dr. Harvey P. Towle; The Surgical Treatment of Tuberculosis of the Larynx, Dr. D. Crosby Greene and Dr. J. C. Kirby; Intestinal Indigestion in Eczeema and Psoriasis, Dr. Francis H. Burnett. Physicians are invited to attend.
F. A. WASHBURN, M.D., Director.

NEW ENGLAND DERMATOLOGICAL SOCIETY.—The Annual Meeting of the society will be held Wednesday, April 12th, at 8.15 P. M., in the Surgical Amphitheatre, Boston City Hospital. Members may bring guests. Henry D. Lloyd, M.D., Secretary.

NEW ENGLAND OPHTHALMOLOGICAL SOCIETY.—A special meeting will be held at the Massachusetts Charitable Eye and Ear Infirmary, Boston, Friday, April 14, at 8 P. M. Professor Barraquer, Colonel Elliot, and Dr. Reynolds will be guests at this meeting.

CLINICAL CONFERENCES AT MEMORIAL HOSPITAL, WORCESTER.—Should sufficient response be received, it is proposed to hold a series of clinics, on Thursday mornings, from 10 to 12, during April and May of this year, at Memorial Hospital. The clinics must, of necessity, consider examples of disease in the hospital at the time, so that no set program can be stated. Even so, the cases are very likely to exemplify problems commonly encountered, and will thus be valuable for study. Neither will there be so many cases that hasty consideration will be encouraged.

It is also proposed to discuss such matter as lends itself to more or less abstract discussion; for instance, the relatively simple method of obtaining a knowledge of renal function. Suggestions of subjects adaptable to similar discussion will be gladly received.

It is in mind to emphasize, during this series, the relationship between "laboratory" findings and clinical phenomena, endeavoring to point out how the information given by the more difficult and expensive laboratory procedures may possibly be obtained by careful clinical observation.

As it is not desirable that more than four should form a group, a greater number tending to lessened opportunity for the members, division of applicants into more than one group may be necessary. Limitation of numbers may also be necessary.

Should interest in the clinics fall for any reason, the series will be closed, although in this regard, suggestions tending to make the work more profitable will always be welcome.

Announcement of the opening of the clinics will be made before April first.

Please send applications to Oliver H. Stansfield, M.D., Memorial Hospital, Worcester, Mass.

The American Association of Anaesthetists and the Mid-Western Association of Anaesthetists will hold a joint meeting in St. Louis, May 23-24, at Hotel Jefferson, the first three days of the A.M.A.

RESEARCH CLUB OF HARVARD MEDICAL SCHOOL.—At the meeting to be held in the Amphitheatre of Building A of the Harvard Medical School, on Friday, April 7th, at 12.30 o'clock, Dr. M. J. Schlesinger will talk "On the Nature of Botulinus Toxin."

NATIONAL BOARD OF MEDICAL EXAMINERS.

The dates for the next two examinations of the National Board of Medical Examiners are as follows: Part I and II, June 19, 20, 21, 22, and 23, 1922. Part I and II, September 25, 26, 27, 28, and 29, 1922.

Applications for the June examination should be in the Secretary's office not later than May 15th, and for the September examination not later than June 1st. Application blanks and circulars of information may be had by writing to the Secretary, Dr. J. S. Rodman, 1310 Medical Arts Building, Philadelphia, Pa.

RESIGNATION OF DR. MICHAEL F. FALLON.

In 1915 Governor David I. Walsh appointed Dr. Michael F. Fallon as a member of the Board of Registration in Medicine. Dr. Fallon has forwarded his resignation to Governor Cox.

Dr. Fallon brought to the service of this Commonwealth a developed intellect and a judicial temperament. Although burdened with professional responsibilities, he rendered loyal service to the State and represented the highest standards of medical ethics. By nature intolerant of everything indicating dishonorable behavior, he exhibited charity toward those unfortunate persons who, either through cupidity or mental incapacity, failed to measure up to the accepted standards of conduct, and was never unduly severe in dealing with those who were charged with criminal or unprofessional practice. He was not disturbed by opposition or unjust criticism, and did not hesitate to perform his duty.

By this resignation the State loses a valuable public servant. It is hoped that the Governor will select a worthy successor.

BOOKS FOR REVIEW.

The Journal acknowledges the receipt of the following books for review:

Diseases of the Eye. 9th Edition. By George E. deSchweinitz. Published by W. B. Saunders Co., Philadelphia. 832 pages. Price \$10.

An Introduction to Dermatology. By Norman Walker. 7th Edition. Published by Wm. Wood & Co., New York. 366 pages. Price \$7.

The Vitamins. By H. C. Sherman and S. L. Smith. Published by The Chemical Catalog Co., Inc., New York. 273 pages.

The Treatment of Ordinary Diseases. By Beverley Robinson. Published by American Medical Publishing Co., New York City. 132 pages. Price \$2.

The Pathological Gall-bladder. By Arial W. George and Ralph D. Leonard. Published by Paul B. Hoeber, New York. 143 pages. Price \$10.

Modern Methods of Treating Fractures. By Ernest W. Hey Groves. Published by Wm. Wood & Co., New York. 435 pages. Price \$8.

Nutrition and Growth in Children. By William R. P. Emerson. Published by D. Appleton & Co., New York. 342 pages. Price \$2.50.

Individual Gymnastics. By Lillian Curtis Drew. Published by Lea & Febiger, Philadelphia. 225 pages. Price \$2.

The Treatment of Common Female Ailments. By Frederick John McCann. Published by Edward Arnold & Co., London. Longmans, Green & Co., New York. 152 pages. Price \$3.

THE MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

REPORTED WEEK ENDING MARCH 18, 1922.

Disease	No. of Cases	Disease	No. of Cases
Anterior poliomyelitis	1	Mumps	129
Anthrax	1	Ophthalmia neonata	
Chicken-pox	114	torum	9
Diphtheria	163	Lobar pneumonia	208
Dog-bite requiring anti-rabic treatment	5	Scarlet fever	229
Encephalitis lethargica	5	Syphilis	46
Epidemic cerebro-spinal meningitis	6	Suppurative conjunctivitis	6
German measles	8	Tetanus	1
Gonorrhea	108	Tuberculosis, pulmonary	168
Influenza	292	Tuberculosis, other forms	27
Measles	538	Typhoid fever	7
		Whooping-cough	128

RECENT DEATHS.

DR. THOMAS EDWARD CLARK, born in Tyringham, Mass., September 29, 1828, died in Los Angeles, Cal., November 27, 1921. He received the degree of M.D. from the College of Physicians and Surgeons in New York in 1866, and practiced in New York for several years. He was interested in scientific subjects and was a fellow of the American Academy of Arts and Sciences, Boston.

DR. CAROLINE MARIA SWEET, a prominent physician of Springfield, died of cerebral hemorrhage at her home in that city, March 17, 1922, at the age of sixty-three.

Dr. Sweet was born at Manchester, Ct., in 1859, the daughter of Samuel G. and Harriet E. (Hall) Sweet. After attending the Manchester schools and Hartford high school she entered Boston University School of Medicine, where she graduated as an honor pupil in 1894. She settled in Springfield.

When the Wesson Memorial Hospital was opened, Dr. Sweet was made visiting physician and remained on the hospital staff until about 10 years ago, when she retired from that office. About that same time she conceived the idea of organizing a medical society among local women doctors, and was successful in forming the Women's Medical Society.

Dr. Sweet was a member of the Springfield Women's Club and of the College Club. She was a lover of outdoor life and owned a cottage near Mt. Tom, where she spent week-ends during the summer. With her extensive practice she found time to do a great amount of charitable work. She is survived by a brother, Dr. Frederick Sweet, of Manchester, Ct.